

# THE CONDOR

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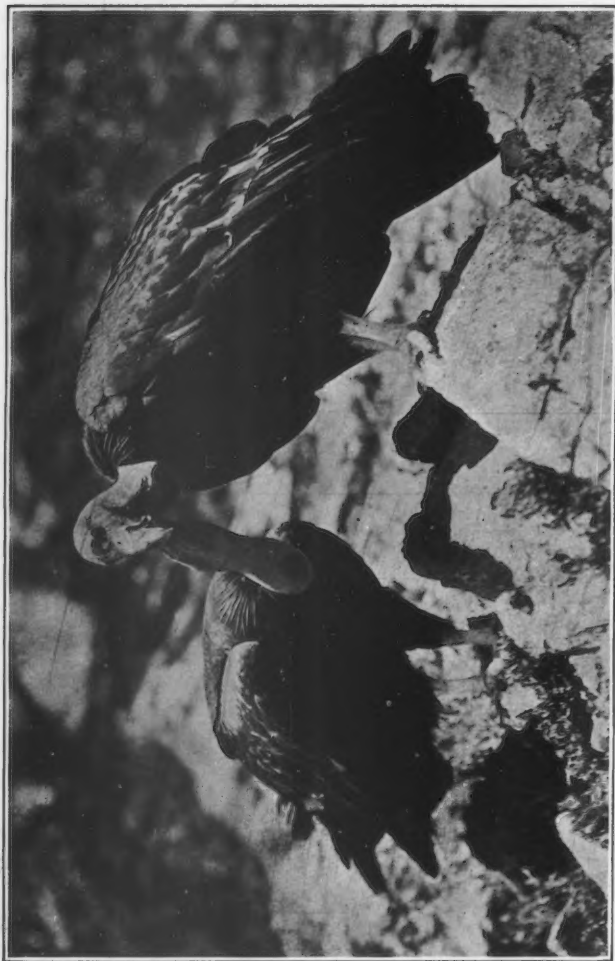
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March 31, 1908

# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume X

March-April 1908

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## LIFE HISTORY OF THE CALIFORNIA CONDOR PART III.—HOME LIFE OF THE CONDORS

By WILLIAM L. FINLEY

WITH PHOTOGRAPHS BY HERMAN T. BOHLMAN AND THE AUTHOR

I N the issue of THE CONDOR for November, 1906, I gave an account of finding the nest and egg of a California Condor (*Gymnogyps californianus*) in the mountains of southern California, which was accomplished thru the help of Mr. Joseph Grinnell and Mr. Walter P. Taylor. In the last issue, January, 1908, I dealt with the historical data and range of the California Condor. Most of the material used was supplied me thru the kindness of Mr. W. Lee Chambers, who has spent years in collecting this data. In the present paper I shall continue the observations Mr. Bohlman and I made at the condor's nest, and tell something of the home life of these birds.

From what we knew of the nesting habits of the California Condor, we could not tell whether the old birds would be shy and hard to photograph, or whether they would show fight while we were working at their home.

On April 11, 1906, we made another trip to the condor's cave. While ascending the steep slope to the nest, a large boulder was accidentally loosened and narrowly missed taking the camera man along as it dropped into the canyon with a loud report. The next moment, the old condor, aroused from her nest, flapped to her perch in the dead tree directly over our heads. We watched and waited, hoping she would return to the nest. But after about fifteen minutes, she raised her wings, hooked her bill about the stump, parrot fashion, and climbed to a higher perch. We crawled on up behind a cover of rocks to get a picture. While fixing the camera, I looked up and the old male was just alighting beside his mate on the dead tree. We crouched down to watch. If the birds saw us, they paid no attention to our presence. The mother edged along the limb and put her head under his neck. Then she nosed him as if asking to be fed, but he responded rather coldly by moving away and she followed. This crowded him out where the limb was

too small, and he jumped across back of her. He seemed to get more friendly and the two sat there side by side, nibbling and caressing each other.

We began crawling further up the ridge for a nearer picture. When we came in full sight of the birds, to my surprise they paid no attention to us. We stopped to take another picture and then climbed on up the steep rock with our cameras on our backs. Under cover of a small bush, I came to a point directly opposite the pair and only about forty feet away. Seeing the condors had no fear of me, I climbed straight out to the edge of the ledge and made some exposures while the mother sat preening her feathers. As neither bird seemed the least anxious as to our presence, I began to enjoy the sensation of getting so close to these big birds in their wild mountain haunt.

In a few minutes, the old male spread his wings and dropped off down the canyon. The next time I saw him, he was a mere speck, soaring high above the mountain. The mother kept turning her head and watching him all the while he was in the sky. Finally she too sailed off.

When we climbed around to the nest, we found the condor nestling had grown from the size of the egg, or from about a double handful, till he filled my hat. The



WITH FEATHERS RUFFLED UP AROUND  
HIS EARS

down on his body had changed color from a pure white to a light gray. Instead of the flesh color on his head and neck, it had changed to a dull yellow. He sat with his shoulders humped and his head hung as if in the last stage of dejection. The minute he saw me, he began crying in a note most peculiar for a bird, for it sounded exactly like the hoarse tooting of a small tin horn. However, he only used this note a few times; then he began hissing. He showed his resentment by drawing in his breath and letting it escape as if thru his nose. His feet were short and stubby, the feet of a scavenger. What a deterioration from the eagle! The claws were

like those of a chicken rather than a bird of prey. The head, the bill and even the look in the eye were very different from the savage expression of the eagle even in his babyhood.

When we picked the youngster up in our hands, he objected in a feeble way by trying to bite. Both the parents had left the vicinity, and we set him down at the entrance of his home to get some pictures. One of the parents was soaring high in the air, and he seemed to see his chick, for he began to descend rapidly. It looked as if he had something in his talons, but when he came nearer, we could see his legs and feet were hanging down as birds often do when about to alight. He seemed to do this as an aid in dropping suddenly. He swept in near us and lit on the old dead pine and was soon followed by his mate. The old birds looked so serious as they sat there staring at us and their young, that we hesitated, for we were not in a position for trouble there on the steep side of the mountain. But they had no intention of stopping us in our work, for they seemed to take the whole enterprise from the point of view of curiosity.

There was something ominous about the condors and their nest cave. Never a sound came from the birds: they came and went like great black shadows. One

minute you might see a mere speck in the clouds, and a few moments later this creature with a wing-spread of ten feet, would skim past only a few yards above your head. There was hardly a swish of the wings to tell of his presence.

April 25th, the next trip we made to the home of the condor, the pair of old birds met us at the mouth of the canyon. One of the birds sailed out over the top of the mountain, quite high in the sky. In a moment the second bird followed lower down. They were perhaps out for a short morning fly after attending to affairs at home. The lower bird, likely the female, soon flew back up the canyon, while the other sailed straight out over the valley toward the east.

Four hours later, I edged down the steep rock as quietly as possible with my reflex camera in hand and worked my way along to the nest. When I got where I could look thru the crack into the cave, there sat the old condor mother sound asleep. She was brooding her nestling. I dropped back behind a bush and got my camera ready. It was too dark to catch her as she left, but I thought she might pause at the threshold and give me a chance for a picture. Then with my camera ready to snap, I gave a short whistle to arouse her. Then moving a little closer, I gave a louder whistle. In an instant she knew I was there, for she plunged headlong out from behind the rock and lit scared and half dazed on her perch a short distance away.

When we stooped to look at the nestling in the cave, he jumped right out at us. He was in a savage mood. If his mother would not stay to defend him, he intended to fight for himself. I could see that he was developing good fighting qualities. His mother might have showed fight too, if she were cornered as he was.

The young condor was growing steadily, for he was now thirty-five days old and as large as a good-sized chicken. His whole body was covered with dark gray down with the outer edgings of lighter gray. When I put down my elbow, he lunged forward and struck it such a hard blow with his bill that it would have drawn blood had he hit my bare hand. The minute I appeared, his neck puffed out with wind and his whole crop filled till it felt just like a rubber ball. He seemed to use his crop as a supply tank for air, which he blew out slowly thru his nose to express his anger. He sat with his head down and mouth open. The front part of his tongue was round and it folded over from each side and met in a little crease down the front. About an inch back, it looked as if it were partly cut in two, for it was narrower and flatter. Such a breath as that youngster had! I could not describe it, and I tried to forget it as soon as possible.

That evening we watched the old condor to see if she would go back to the nest. But at six o'clock she settled down on her perch with her head drawn in, and went to sleep. The young condor had to sleep alone.



ONE CONDOR BECAME TOO AMOROUS AND CROWDED  
THE OTHER OFF THE PERCH

We awoke at daylight in the morning with a cold draft drawing down the canyon. The old condor was still sound asleep on the dead tree up the mountain side. At six-twenty, she sailed across over our heads and lit on the side of the cliff. She was there but a moment when she spread her wings and dropped back across to the nest where she stayed an hour, after which she took up her perch on the tree.

We examined both the old birds from a near point of view and found they were almost identical. We were not positive, but took it for granted that it was the mother that staid at the nest. The other bird, likely the male, seemed to be a trifle larger. At this season as well as during the period of incubation, the female seemed to stay on the nest or nearby, while the male did all the hunting.

We had seen nothing of the male since the morning before about ten o'clock, when he disappeared high to the east. As the mother sat there on her perch, she



BOHLMAN PETTING THE YOUNG CONDOR, WHILE THE PARENT SHOWS CURIOSITY AND ANXIETY

often turned her head and scanned the heavens, looking for the coming of her mate. By watching her, our attention was first called to a mere speck in the sky. It grew with surprising rapidity, and as it took better form, we could see a bird coming toward us with extreme speed. Thru the field-glass, we could see that the feet were dropped, and we knew it was the male condor, for this was the way he always came. With one great slide to the west, and a long swerve to the north, he circled with the curve of the canyon and brought up on the top of the dead pine only thirty feet away. I never saw such a slide as that bird took. Such smoothness and grace! And such tremendous speed!

Each day at the nest we seemed to be getting on more intimate terms with the old birds. The minute we lifted the young condor from behind the rocks, the old birds were very much interested. They both came over to a nearer perch where they could see, and they twisted their necks to watch every move we made. When

the mother saw her gray nestling, she flew across to the rocks above us. Then she ran along the steep slope, but had to help herself with her wings to keep her feet, and hopped up on a small oak limb just above the nest and only twenty feet distant. The old male followed and both sat watching us from the tree. It was all anxiety with them, and we were so anxious to get their pictures that we could not shoot fast enough. In a short time, all our plates were gone and we had to sit down and watch, and wish for more.

This gave us the best chances to study both the old birds. Their bills were of dark horn color and the red skin of the head extended down covering the bill about half way. The feet were of similar color, but on each knee was a patch of red. There was a brighter patch of red on the breast of each bird, which could occasionally be seen when they were preening and when they spread their breast feathers. Both had light-colored wing-bars and the primaries were well worn. The skin on the throat hung loose and the lower mandible fitted in close under the upper, giving the bird a peculiar expression. The chin was orange and below this on the neck was a strip of greenish-yellow merging into brighter orange on the sides and back



LEAVING THE OLD STUB

of the neck. The top and front of the head were bright red, but between the eyes was a small patch of black feathers, and these extended down in front of the eye till they faded into the orange red of the neck. The pupil of the eye was black, but the iris was deep red and conspicuous. The top of the head was wrinkled as if with age. The ruff, or long shiny black feathers about the neck, was often ruffled up, giving the bird a savage appearance. Behind the ruff on the back the feathers were edged with dark brown.

When we made the next trip into the mountains, to our surprise a third condor appeared above the nest in the afternoon. He was a ragged looking bird, with two or three feathers out of his wings and one missing from his tail. We first noticed the new bird as we saw the parents watching him intently when he was high in the sky. He began circling nearer and nearer till he finally lit on the side of the mountain a few hundred yards up the canyon. The parents watched him closely for some time without a move, till the new arrival, thinking his presence was not objectionable, flew down and lit nearer the nest. The male set out after him and the third condor flew back up the canyon. There was some objection to the new



comer, but it was not serious, for he stayed about all the afternoon, and at one time lit for a moment on the dead tree near the nest. The male drove him off, but only chased him a short distance.

The third condor seemed a trifle smaller than the other two, but he was almost as brightly colored as the parents. We were inclined to think he was one of the children of former years. We watched the three birds till six o'clock and then climbed down to make camp. The parents were perched on the dead tree in front of the nest, and the third bird on the mountain side above, and there they went to sleep for the night.

Early the next morning we found one of the birds, presumably the male, and the intruder gone, while the other still sat on the tree-perch. About noon the father appeared in the eastern sky. The mother saw him first and we were attracted by her watching. We were surprised again to see the third bird following a little in



PERCHED IN AN OAK ABOVE THE NEST: ALTHO THE BIRDS WERE BIG AND HEAVY THEY PERCHED READILY IN A TREE AND CLIMBED FROM LIMB TO LIMB, OFTEN USING THE HOOKED BILL TO HELP THEM

the rear, and he came on down and stayed during the afternoon. The crops of both birds were bulging out when they returned, showing that they knew where to get food.

The young condor was now fifty-four days old, but he was still clothed in gray down. It was over two months before the first black feathers began to show on his wings, and they developed very slowly; for by the first week in July when we had expected to complete our series, the young bird was not half feathered out, altho he was three months and a half old and weighed over fifteen pounds.

We could see that the parents were becoming more and more attached to the nestling, and they were becoming tamer and tamer while we were about. The nestling was wilder and more ferocious as he grew. The only way we could touch him was by wearing heavy gloves or by blindfolding him. He lunged about and fought while he was in the cave; but when we got him out of his home, he

seemed to change tactics and to become quite meek. While we were getting pictures of him, the parents sat about only a few feet away. They were almost devoid of fear, for several times they stood within five or six feet of us in perfect unconcern. Of course, we had been extremely careful from the first not to scare them and not to make any quick movements while they were so near. In all our study of the home life of these birds, there was never the slightest indication of ferocity on the part of the parents. Their attitude was one of anxiety and solicitation.

The last afternoon when we took the young condor out of his cave and he appeared blindfolded, the mother jumped back as if scared, for she could hardly recognize him without a head. We placed him on a narrow ledge of rock, removed the blind and the mother edged down to her young. Then she began caressing him, pushing her head under his wing and biting him gently on the leg. I never saw a greater show of affection in any bird than the two condors seemed to have for each other and for their young. The longer we studied and the more we watched this family, the stronger our own attachment became for the birds.

While we were taking our final pictures of the condor family, two more condors appeared high above. With a field-glass, we recognized one as the former visitor, the ragged bird with missing feathers in the wing and tail. The two new arrivals sailed about in circles for a while and then we saw the ragged bird descending. The father of the young condor seemed to get more anxious and flapped across the canyon and back. On came the visitor till he was only a short distance above the top of the mountain. Then the father sailed rapidly down the canyon and around the bend out of sight. The third bird dropped lower and lower in circles while his mate stayed higher up in the sky. The father of the young bird was gone about five minutes, when he suddenly appeared right over the top of the mountain and higher than the visitor. He had made a feint and got the advantage of position. Drawing his wings partly in, he dove at the intruder who saw him coming and increased his speed down the canyon. Dodging the enraged condor, he circled back up a small side ravine and both disappeared behind the mountain. In a few minutes, they came into view again higher in the air and going toward the west, the old condor flapping wildly to strike a blow and the pursued one dodging back and forth to escape. They were undoubtedly two males, for the mother sat calmly looking at the chase, while the mate of the ragged bird sailed about watching the outcome. After another wait of several minutes, the two birds appeared again, but far up in the sky; the ragged bird was flying straight to the east, still dodging the mad condor at his tail. And on they went as far as I could see, with the mate of the ragged bird following some distance in the rear. In about half an hour, the father again appeared, sailing slowly back alone, victorious in the chase.

*Portland, Oregon.*

#### SPRING NOTES FROM SANTA CATALINA ISLAND

By CHARLES H. RICHARDSON, JR.

SANTA Catalina Island lies about twenty-five miles off the coast of Los Angeles County, California. It is an exposed portion of a mountain range, of which the other islands of the Santa Barbara Group are a part, and is twenty-three miles long with a maximum width of eight miles. The surface of the Island is broken by many canyons, some short with steep, almost precipitous



sides, others reaching far into the interior of the Island. Their lower courses widen out into sandy washes.

Vegetation is heaviest on the shady north slope of the hills, and in the canyons containing water. In the latter localities, cottonwood trees (*Populus trichocarpa*) attain a good height, and here are also found groves of wild cherry trees (*Cerasus lyoni*), and a species of scrub oak. The hillsides are covered with a number of different kinds of brush, prominent among them being the scrub oak and a sumac.

These notes are the result of two brief sojourns on Santa Catalina Island in the month of April, eight days being spent in 1905, and five in 1906. Fortunately both trips were made after wet seasons; the hills were carpeted with grass, flowers and insects were abundant.

As practically all the time was given to the study of the land birds, only these will be mentioned in the annotations to follow.

One accustomed to a large and varied avifauna is at once impressed by the scarcity of species on Santa Catalina Island. As one stops to rest in the canyons, or looks out on the blue Pacific from a hill top, scarcely a sound is heard. To be sure, one occasionally catches the song of a Mockingbird, the hoarse croak of a Raven, or the faint note of a Warbler; but there is no ringing medley of bird voices so often heard upon the mainland.

**Lophortyx catalinensis.** Catalina Island Quail. Abundant both seasons. A half-completed nest was found on a narrow ridge that overlooked the ocean. It resembled the nests of the mainland species, being built of dried grass in a hollow flush with the surface.

**Zenaidura carolinensis.** Mourning Dove. Seen about springs where they came to drink. The birds were paired at the time of my visits. An old nest was found, proving the species to be resident.

**Accipiter velox.** Sharp-shinned Hawk. On April 19, 1905, an individual of this hawk was flushed from a thicket of scrub oak. This was the only one seen.

**Buteo borealis calurus.** Western Red-tail. Common about the hillsides, especially where ground squirrels are abundant.

**Haliaeetus leucocephalus.** Bald Eagle. A number of bald eagles were seen circling about the cliffs.

**Colaptes cafer collaris.** Red-shafted Flicker. Flickers were seen but twice. They are probably only winter visitors to the Island, as a diligent search in suitable places failed to reveal a single nesting hole.

**Phalaenoptilus nuttalli californicus.** Dusky Poor-will. Occasionally seen at dusk in the wash back of Avalon. Altho no specimens were taken, the birds seen were probably referable to this form.

**Aeronautes melanoleucus.** White-throated Swift. White-throated Swifts were often seen flying over a grassy ridge back of Avalon. After wasting much ammunition, a beautiful female specimen was secured.

**Calypte anna.** Anna Hummingbird. A few Anna Hummingbirds were seen, but they were not nearly so plentiful as *Selasphorus alleni*.

**Selasphorus alleni.** Allen Hummingbird. An abundant resident at the time of both my visits: the breeding season was well advanced, many nests being found which contained large young. The nests were nearly always built in oaks or cottonwoods in narrow canyons where there was water. Only once did I find this rule violated, in this instance the bird building its nest in a sumac which grew in a sandy wash.

The basis of the nest was, with a few exceptions, sheep's wool. This was

fastened to the twig by the aid of spider-web, the same substance being used to adhere green moss to the outside. Occasionally vegetable down was used in the lining. The dimensions of two nests are as follows:

I. Outside—Diameter, 59 mm., depth, 37 mm. Inside—Diameter, 35 mm., depth, 15 mm. II. Outside—Diameter, 47 mm., depth, 35 mm. Inside—Diameter, 27 mm., depth, 15 mm.

The males resorted to the wild tobacco bushes (*Nicotiana glauca*) which grew abundantly in the washes. They were very pugnacious little fellows, constantly fighting and chasing one another about.

**Sayornis nigricans.** Black Phoebe. A single individual was heard on the morning of April 18, 1906. This was the only one noted.

**Empidonax difficilis.** Western Flycatcher. One of the most abundant birds on the Island. Found wherever there is shrubbery, from the shore to the highest ridges. The birds were in pairs and the breeding season was apparently just beginning, one partly completed nest being found.

Some time was spent in watching the owners of this nest. One of the birds would work on the nest, while the other, presumably the male, would place itself in an exposed position to ward off intruders. Evidently it classed all birds as intruders, for an innocent Dusky Warbler, which happened to alight in the tree, was instantly driven off, leaving behind a goodly number of feathers.

The inadvisability of retaining the name "*insulicola*" for the *Empidonax* from the Santa Barbara Islands has been discussed in previous numbers of THE CONDOR<sup>1</sup> and will not be reiterated here.

**Corvus corax sinuatus.** Mexican Raven. Very common. Most any time several could be seen flying about, and uttering a peculiar clicking note.

On April 19, 1905, a nest containing six eggs was found. It was built in a wild cherry tree fifteen feet from the ground, and was made of good-sized sticks, lined with black and white sheep's wool. Incubation was fresh in every egg but one, that being slightly addled.

**Icterus cucullatus nelsoni.** Arizona Hooded Oriole. Heard once on April 16, 1906. Probably more common later, as I have observed them a number of times in the summer.

**Carpodacus mexicanus clementis.** San Clemente Linnet. Abundant in the eucalyptus trees about Avalon and in the cactus patches farther inland where they were nesting. Many partially finished nests and incomplete sets were noted, indicating that the breeding season had just begun. The nest is built on a branch of cactus usually well in toward the center of the patch, and is composed outwardly of weeds and like substances, lined with grass and sheep's wool. A set of four eggs taken are essentially like those of the mainland form.

**Astragalinus psaltria hesperophilus.** Green-backed Goldfinch. Observed several times in the weed patches on the hillsides.

**Astragalinus lawrencei.** Lawrence Goldfinch. Lawrence Goldfinches were seen several times flying overhead, uttering their characteristic metallic notes the while, but were not as common as the Green-backed.

**Zonotrichia leucophrys gambeli.** Intermediate Sparrow. Quite common in the washes. As they are known to be an abundant winter visitant<sup>2</sup> probably the bulk of them had gone north before my arrival.

**Zonotrichia coronata.** Golden-crowned Sparrow. Seen on several occasions in 1906 but not detected in 1905. They frequented the washes in company with the previously named species.

<sup>1</sup> See CONDOR Vol. VII, No. 2, pp. 51-52; and CONDOR Vol. VIII, No. 3, p. 74.

<sup>2</sup> See Auk Vol. XV, No. 3, p. 235.

**Spizella socialis arizonæ.** Western Chipping Sparrow. Abundant everywhere and in full song. One was seen carrying nesting material, and old nests were found, which shows that they are summer residents.

**Passerella iliaca insularis(?)** A Fox Sparrow was noted on April 21, 1905. It was feeding on the ground beneath a clump of bushes, and at intervals uttered a low warbling song, similar to the song of the Green-backed Goldfinch, but sweeter. It probably belonged to the form *insularis*.

**Pipilo maculatus clementæ.** San Clemente Towhee. Very abundant especially in the washes. Nine specimens, six males and three females were secured. Compared with specimens of *Pipilo maculatus megalonyx* in my collection, they have larger bills and are grayer dorsally, this latter condition being especially prominent in the females.

**Cyanospiza amœna.** Lazuli Bunting. Seen occasionally in the canyons where water was present, but not very common.

**Lanius sp?** About half a dozen shrikes were seen on the golf links back of Avalon. In 1905 three fully fledged juveniles being fed by their parents, were noted. The status of the Catalina shrike has not been determined.

**Helminthophila celata sordida.** Dusky Warbler. Dusky Warblers were very common in the canyons and in the scrub oaks on the hillsides, where they were nesting. The hight of the breeding season must be the last of March, for many fully fledged juveniles and nestlings were seen by the middle of April. They were nesting in small scattered colonies, the nests usually being placed in scrub oaks from fifteen to twenty feet from the ground. Some nests however were built in sumacs, and one was found in vines overhanging a gorge. They were quite bulky affairs, made of leaves, small twigs, grass and bark, lined with fine grass or sheep's wool. Dimensions of two nests are as follows:

1. Diameter—Outside, 3.50 inches; inside, 1.50 inches. Depth—Outside, 5.00 inches; inside, 2.25 inches.

II. Diameter—Outside, 3.75 inches; inside, 2.00 inches. Depth—Outside, 3.00 inches; inside, 1.50 inches.

Several clutches of four eggs were noted, besides quite a number of incomplete sets. The ground color of the eggs is ivory white, dotted and finely blotched with burnt sienna and pale lilac.

The female is a very close sitter, almost allowing herself to be removed by the hand, and when driven from the nest feigns a broken wing, falling lightly to the ground, only to return and repeat the process, or utter scolding notes resembling "chit-chit."

The male bird was always present with the female when the nest was being examined, but did not express so much anxiety as his mate. When the female was sitting he would hop about in the nearby trees, uttering at intervals his beautiful warbling song, "ti-ti-ti-ti-ti-ti-ti-ch-ch-ch," beginning quite slowly and gradually gaining in rapidity. This, I must say, is a poor rendition of the song, as there is a certain metallic ring to it, which cannot be expressed in words.

**Dendroica auduboni.** Audubon Warbler. Quite numerous in the washes.

**Mimus polyglottos leucopterus.** Western Mockingbird. Abundant everywhere and in full song. I was very much surprised to hear this bird give a perfect imitation of the cry of the Western Gull.

**Thryomanes bewicki charienturus.** San Diego Wren. Abundant in the washes where many juveniles were observed, indicating that the breeding season is early in March.

**Hylocichla guttata nana.** Dwarf Hermit Thrush. A very few individuals of this species were seen in the brush tangles in the canyons. One was heard singing its exquisite song.

Pasadena, California.

## NOTES ON THE RHEA OR SOUTH AMERICAN OSTRICH

By SAMUEL ADAMS

THE market place of a South American city abounds with interest for the traveller. Here under one roof are piled in profusion the varied fruits and vegetables, meats, fish and game of the locality, and they are sure to interest the newcomer, appealing either to his tastes or his curiosity. I was especially anxious for some reason or other to taste a rhea's egg after seeing one in the market, and when I did I made a meal of it and regretted what I had done for several hours after. The flesh of the rhea like its eggs is very rich and gamy, and with a novice a little goes a long way.

There are two species of Rhea. The larger, *Rhea americana*, ranges from Southern Brazil and Paraguay southward thru Uruguay and northern Argentina into Patagonia, southern Argentina, as far south as the Rio Negro. *Rhea darwini*, the smaller of the two, is a Patagonian bird, overlapping the range of the other on the south and extending as far as the Straits of Magellan. In their habits the



SOME RHEAS FEEDING ON ONE OF THE FARMS; A SHEEP GRAZING NEAR TWO OF THEM

two birds are said to be practically alike, and their appearance does not differ greatly. The general color is a dark grey, the tips of the back feathers and the quills being white. I have seen a rhea in a menagerie, the back and wings of which were a solid white. Whether this bird was a freak or another species, I am not prepared to say as I have never seen it described. At a distance the dusky cast of the southern bird blends with the Patagonian landscape and makes its detection at times almost impossible. The males of both species are slightly darker than the females, but it takes an experienced eye to tell them apart at a distance. The plumes of the rhea are adapted to some uses in millinery but they are very filmy and in no way compare with those of the African ostrich. They are chiefly used to make dusters and bed fillers. The rhea stands about three feet in height at the back and his foot-and-a-half neck brings his eyes some fifty inches from the ground.

In so desolate a region as Patagonia one might wonder what the rhea finds to eat the year around; doubtless many do starve in southern Patagonia during the severe winters when there is sufficient snow to keep them from the grass. In the summer months there are plenty of big black beetles and green grass and plants to keep them fat, and with the exception of Patagonia their range affords all the sustenance that is required at any season of the year. The rhea is a constant feeder in

the summer time in Patagonia and in the fall is fat and well prepared to weather the usually moderate winter that prevails there.

The family life of the rhea is not, like that of many birds, an open book to all who care to observe them. Their natural shyness and the barrenness of the country in which they live afford but few advantages for observation. The comparison of many notes made at various times by numerous careful observers has given us our most reliable data. This snatching little pieces here and there and putting them together has built up a life-history of the largest of living American birds. The tales of the gauchos in regard to the rhea as well as other animals, while entertaining and true in many details, border on the fanciful yarns of the dreaded nature fakirs and they never hesitate to supply essential points if their own experience has not covered the gaps!

The rhea is said to be a polygamous bird, and the male incubates the eggs of several females, the process requiring six weeks. The females also lay many eggs in the camp or prairie to go unincubated. Whether she deposits eggs in more than



A WOUNDED *Rhea darwini*

one nest is not known, tho it seems possible, for they wander over much ground. The hens are not rapid layers. A bird in captivity is known to have dropped one egg every three days for a period of seven weeks. The size too of the clutch varies widely; as few as a dozen and as many as half a gross have been found in a single nest. In these larger nests the difference in the ages of the eggs is very noticeable. The fresh eggs have a beautiful greenish tinge which fades rapidly during incubation or exposure on the pampa. It is claimed by some observers that the females assist the males in the incubation, but it seems that this is only for a small part of the time. The size of the nest may depend largely on the number of the females, but the diameter of the nest is almost a constant factor, the variation being in the depth, for eggs are sometimes found as much as a foot or more below the upper layer buried in debris and dirt. A gaucho told me that these eggs were buried so that the old birds could break them on the ground when the young were hatched to draw flies for their first food. I think it was just the result of overcrowding, and not necessarily premeditated.

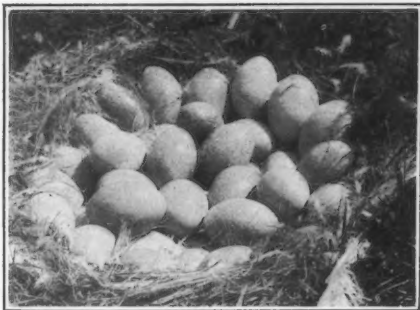


The young bird is quick to grasp the spirit of his wild existence and leaves the nest when scarcely dry. When left alone they feed together in a flock, eagerly running after insects, and picking at everything that looks green and tempting. His free life makes him jealous of his liberty and it is difficult to capture a young bird. Once caught, however, they are easily tamed, and except for their fondness for houseplants and garden truck they would make a handsome fowl about the farm.

On the open pampa the rhea is a very shy bird, making off at the first approach of danger. If a choice of direction permits he chooses the wind and runs against it with wings outstretched when greatly alarmed. A horse is no match whatever in speed or endurance on a fresh start, and the native hunter aims to exhaust the bird with dogs, and then approach closely enough, if necessary with a final dash to ensnare him with the bolas. The farmers on some of the ranches forbid the molestation of the rheas by the peons or their dogs, and thus afford in season an abundance of fresh eggs close at hand. These birds, accustomed to the sight of man, gave me a chance to photograph them at rather close range, but the lack of contrast in their outline and that of their background makes the picture quite unsatisfactory.

The rhea hunter of the pampa is a picturesque character and a typical nomad.

A few well-seasoned horses and a troupe of half a dozen dogs with long legs and plenty of endurance form the chief part of his outfit. A recado or blanket saddle furnishes at once a seat and a bed; a small kettle to boil water for his maté or native tea, with its drinking outfit is the extent of his culinary equipment, and matches, tobacco, a knife and the bolas complete the outfit. He lives on roasted meat and maté. The hunter follows the game over the open pampá or along the water sheds tributary to the lakes or rivers and unless it takes to the water it is almost invariably captured due to the relentless pursuit, since time plays no part. The rhea is a strong swimmer and has been seen to voluntarily cross a river for the sake of better feeding grounds. The task is evidently not greatly distasteful to him.



NEST OF *Rhea darwini* WITH 42 EGGS

The method of cooking the rhea and its eggs invented by the indians is ingenious and effective; the idea of simplicity has been generally adopted by the peons, in Argentina at least, to the cooking of meats in general. The flesh on the carcass of the rhea is tender and delicious while the leg meat is as tough as sole leather, and is not eaten unless food is scarce. The indians after removing the viscera thru a small opening in the abdomen fill the cavity with hot stones about the size of tennis balls and leave the bird to roast with the skin on. The eggs when not eaten raw are prepared by roasting in the hot ashes, after breaking the shell at one end so the contents may have room to expand and be stirred. Piles of the smooth stones used in the cooking process are found about the old camping grounds on the pampa and testify to the antiquity of the custom. The skins of the rhea are frequently used by the indians for bed mats, and they have devised a tobacco pouch out of the neck skin which they peel from the shoulders toward the head without making a longitudinal opening. By stretching and drying this and putting in a few stitches in the bottom they have a very serviceable pouch.

Topeka, Kansas.

## OBSERVATIONS ON THE NESTING HABITS OF THE PHAINOPEPLA

By HARRIET WILLIAMS MYERS

PHOTOGRAPHS BY LAWRENCE MACOMBER

ON May 19th, 1907, I came upon a Phainopepla's nest built on a horizontal crotch of a large pepper tree some fifteen feet from the ground. The placing of the nest in a horizontal crotch differed from any nest that I have ever seen built by these birds, the others being in upright crotches. The limbs selected to hold the nest were large and some distance apart. The nest itself differed not from other nests of this species. It was gray in color and shallow, saucer-shaped in form. From so far away I could not examine its material but it looked fine.

At 1:47 P. M. the female came to the nest with material in her mouth. This she deposited and left. At 1:55 the male came into the tree but seeing me flew out again with much twitching of the tail and calling. In ten minutes he returned, darted out again, immediately returned and took the nest. For twenty-five minutes he brooded, then left, returning in four minutes. For ten minutes more he sat quietly, then suddenly left the tree giving his harsh "scrat" call and twitching his tail. Presently I heard him singing in a nearby tree. At 2:55, just an hour from the time he had taken the tree, he drove another Phainopepla away. At about the same time the female came to a neighboring tree, and the male flew away. It seemed evident that this pair, like all the other Phainopeplas that I have watched nesting, always guarded the tree. One left, only, when his, or her, mate was near by.

The next morning when I visited the nest shortly after ten o'clock the male was brooding. At 10:16 he took a turn in the air and returned. His actions plainly showed that my presence disturbed him. There was no place where I could see the nest and be entirely obscured. In his shyness he differed from the male I had watched in the pepper tree the year before. This male was quite fearless, the female being the shy one. I found in my watching at this nest that the female was much less shy than her mate.

In the afternoon of this same day when I visited the nest at 4:30 I found the male there. I began to wonder if he were to do all the brooding. At 4:56 the female came and took the nest, the first time I had seen her do so.

On the 26th of the month, seven days after brooding had commenced, I saw the female bring a long piece of stringy gray material and place it in the nest. Later when I learned that Mrs. Olive Thorne Miller had hung southern moss out in her yard near by, I made up my mind that that was what the bird had. In one nest that I watched last year the birds added material after brooding was well commenced. Seemingly this is a custom of these birds.

I find in my note book for May 29th, ten days after I first discovered the nest, the following record:

3:23 P. M., female on nest, did not fly when I came; 3:30, female left nest; 3:34, male took nest, is very shy; 4:02, male left nest, gave call; 4:03, male came back; 4:30, female flew over tree and male left; 4:31, male came back, then left again; 4:33, male took nest; 4:48, female catching insects nearby; male left nest with low call; 4:50, female took nest.

When the male was not brooding he spent much time in singing. It was not



always the low song that the male so often sings, but generally it was loud enough for me to plainly hear it at my home across the street.

On the morning of June 4th, when I visited the nest the female was brooding, the male nowhere in sight. This morning the female was unusually shy. She moved about in the nest giving her call note with much twitching of the tail and bobbing of her head. It was sixteen days since I first found the male on the nest, but tho I had been watching the birds closely of late, I had seen no evidence of young. At four p. m. I found the female on the nest. At 4:53 she left the nest and with the mate was about in the tree. In a few minutes the male flew away and the female went to catching insects near the tree. At just five o'clock she came to the nest and fed once. For a moment she stood on the edge of the nest, then slipped onto it without feeding again, tho she had swallowed once or twice and her throat had swelled as tho she were going to do so. At 5:12 the male came to the tree and the female left. In his mouth he carried a round, dark substance which I believe was a nightshade berry. As he reached the nest I saw this disappear into his throat, come up into his bill, disappear and come up again. This was repeated four times, when it was fed to something in the nest in one feeding. Then the male took the nest.



FEMALE PARENT AND YOUNG OF  
PHAINOPEPLA

In half an hour the female came into the tree. She was met by her mate who drove her away. He twitched and called, and acted so distressed that I went back out of sight when he allowed his mate to come back, feed, and take the nest. In five minutes the male came to the nest and the female left. This time the male fed several times, then for one minute sat and just looked at the young before taking the nest. At 5:46 he left the tree; at 5:47 the female came but was driven away by her mate who went to the nest twice and looked at the young. At 5:50 the male took the nest. At six o'clock when I left he was still there.

The next day I watched at the nest one hour and nineteen minutes commencing at 9:07 o'clock. During that time the male fed twice and the female three times, the longest interval being twenty-two minutes, the shortest four. The manner of feeding the young seemed not to change from the beginning until they left the nest. As near as I could tell, berries and tiny insects formed the chief part of the diet. When the birds fed pepper berries, or nightshade, the berries were taken from the mouth down into the neck, and back several times before feeding. In the case of the insects they seemed to be carried in the throat, extending down into the neck, from which they were brought up by a sort of pumping motion, not violent, however, like the finches.

Three days after feeding commenced, at 2:30, I found the young alone. In nine minutes both birds came and fed several times, and the female took the nest. In the two hours and twenty minutes that I watched this day the old birds each fed twice, the longest interval being forty minutes, the shortest eleven.

On June 15th, eleven days after I first was sure that there were young in the nest, for the first time I caught a glimpse of them. Two gray heads, from which stuck up stiff bristling feathers that would some day be crests, were visible above

the rim of the shallow nest. Their eyes were dark and their mouths a dull yellow. When the old birds brought food the young set up a harsh, hoarse call; a sort of "scrat," as if something grated.

On the afternoon of this same day the male *Phainopepla* came into a tree near the nest, carrying a white substance about the size of a bean. What it was I could not tell. The female saw him and flew into his tree. Her mate bristled up and as she made a dive at him in an effort to get the morsel he carried, he evaded her and left the tree; nor did he bring it to the nest while I watched.

When the young were twelve days old, I first saw them beg for food. On this day, also, they were seen to preen their feathers. Two days later they sat well up in the nest. Their crests were well started being, perhaps, one third their natural height. As one of them preened his feathers his wing was outstretched and a light patch was plainly visible on it. The youngsters were, for the most part, quiet, dignified little fellows, but they opened orange lined mouths and begged with a harsh purring noise when the old ones were about.

My record for June 18th, reads: 9:30, young alone; 9:45, female fed several times, and left; 10:05, female fed; 10:15, female fed each bird two or three times, bringing food from the throat as at first. Male singing near by; young roused up, twitched short tails, and cried "scrat." 10:25, male fed each bird several times what looked like nightshade; 10:25, female came to nest but did not feed tho young begged; 10:50, female fed; 10:58, male fed.

Not until nineteen days after I had seen the old birds feed them did the young leave the nest. At eleven A. M., June 23d, while I watched at the nest, one young bird hopped out onto the limb about a foot from the nest, paused a moment, then flew about four feet higher up. In less than a minute the other bird followed his mate up into the tree, both birds keeping up the harsh call. At 11:15 the female came to the empty nest, paused there a moment, then flew up to one of the birds and fed it. Her mate fed the other one in two minutes. In color the young birds resembled their mother; in size they were more like a cedar waxwing. Their eyes were dark, not red like the adults.

Shortly after seven o'clock that night I went over to the pepper tree thinking I would see if they were anywhere about. To my astonishment I found them back in the nest. In the short time in which I watched them that night the male came and fed them twice.

The next morning at 7:15 I was at the tree. One young bird was still in the nest, the other was about five feet higher up in the tree. While I watched the female came and fed the young in the nest twice, then the other one twice, and



NEST OF PHAINOPEPLA ON SYCAMORE BOUGH

then the one in the nest once more. When she had left, the nestling in the tree flew down on the edge of the nest beside his mate. The male came and fed him once but did not feed the bird in the nest. When he had left, both young flew up into the tree. There I left them. That night they were not in the tree nor did I see them again.

Los Angeles, California.

SOME DATA AND RECORDS FROM THE WHETSTONE MOUNTAINS,  
ARIZONA <sup>x</sup>

By AUSTIN PAUL SMITH

**O**BSERVATION by contemporaries, ascribes *Junco phaeonotus palliatus* almost exclusively to the pine zone of such regions as it inhabits. Yet it was the first Junco I recorded from this range—a single individual, ♀ adult, altitude 4800 feet. This happened on the 26th of September. Next day I flushed a flock of perhaps fifteen, a very few feet from the original location. They were then feeding in and about a growth of Ceanothus and poison oak, for which at most times they showed a preference. Thereafter the Arizona Junco could be noted regularly in the Transition zone, during my stay.

The Gray-headed Junco (*Junco caniceps*) became noticeable several days later, generally associated with the Arizona variety. However, one might chance at any time upon small flocks in the same general locality, but composed entirely of the one species.

Here is a record that strikes me as unusual, when altitude be considered: *Piranga rubra cooperi*, enjoying certain caterpillars that were defoliating the few trees of western walnut that had managed to gain a foothold in a canyon, a little above 4000 feet on September 27; a male in full plumage, and the third of its kind that had been noted that high during the season. Paradoxically, this date also stands for my last Western Tanager (*Piranga ludoviciana*), with an added 1000 feet in elevation. Of the Hepatic Tanager (*Piranga hepatica*) nothing was recorded after July.

As Swarth in his "Birds of the Huachuca Mountains," lays stress on the early departure from that group of *Icterus parisorum*, its persistence in remaining a resident of the Whetstones up to the day of my departure (October 5) is worth setting down. During August the adult birds were but seldom in evidence. Undoubtedly this was due to that month covering their molt period, as the few birds (five or six) I chanced upon, were all in such condition. September brought them forth again, the male birds to my mind, boasting quite as regal plumage as in the spring, the scaly appearance, caused by the gray edgings (occasionally white) of the feathers of the back, detracting in nowise from their splendor. Opuntia fruit ripened during September, and I imagine the Scott Oriole was care-free then, for they seem to feed on little else when these juicy cacti are available. Their sharp clear whistle gains a second life after the molt, and is super-enjoyable because of its solitariness in the forests of this range at such time.

<sup>x</sup> This range lies thirty-five miles due north of the Huachuca Mountains.—A. P. S.

Warblers are a very interesting group we admit, but neither species nor individuals were represented sufficiently to gain proportionate rank. Townsend Warblers (*Dendroica townsendi*) I met with during the migrations, at about the 5000 foot level at all times. They limited themselves to such ravines as harbored a growth of madrona trees. Latest spring date: May 13; fall dates: September 5 to 21. Audubon Warblers (*Dendroica auduboni*), found in abundance during the earlier weeks of May, had all disappeared by the 20th, and no more were seen until October 1, when I secured an immature ♂ at 5000 feet. Black-throated Gray Warblers (*Dendroica nigrescens*) being plentiful at all elevations during my entire stay, I cannot give any arrival or departure dates. But a bird secured, with additional ones seen, October 28, along the Rio San Pedro, gives ground for believing them of very late departure from the highlands, and, with future investigation, a winter resident of the valleys of southern Arizona. The Tolmie Warbler (*Oporornis tolmiei*) was not recorded during the spring. An adult ♂ on September 5, was my first fall date; for a month thereafter it was of usual occurrence from where the oaks begin, up to the pines. Quite deliberate of movement, yet retiring, the brushy situations at all times were chosen, in preference to the arborescent growth. The commonest warbler here, the Pileolated (*Wilsonia pusilla pileolata*), was noted every month, only excepting June and July (absent May 26 to August 5).

Lucy Warblers (*Helminthophila luciae*) will claim attention during their season, in most any arroyo or wash between the mountains and San Pedro River, but none in the mountains proper. The single exception happened on June 3, which I can recall as an exceedingly warm day. Returning from a tramp about the foothills, and pausing to drink at the first spring encountered, a diminutive warbler, recognized as the Lucy, flew down and began quenching its thirst also, at a distance of ten feet. Elevation 4200 feet, among the oaks.

How eager I was, to make the reacquaintance of the Painted Redstart (*Setophaga picta*) after a lapse of some years. Still I believed myself doomed to disappointment up to the 22nd of July. Then a solitary bird, and no more, until after the heavy rains of the last week in August, which put the canyons in ideal condition for this species, i. e., freshened up the mosses and lichens; brought forth a heavy undergrowth; started many rivulets; and lastly, introduced innumerable swarms of midges into the world to enjoy the situation. And now too, the migratory time had arrived. So the two weeks from September 7 to 21, marked a period of abundant opportunity to study this species. Nervous energy in the bird is quite generally attributed in maximum to the wren, but I think I can say confidently, that no bird coming within the scope of my observation, has a better claim to a title of perpetual motion than the Painted Redstart: I have never seen it quiet for ten consecutive seconds!

Among the half dozen species of Woodpeckers, found in the Transition zone at times during my visit, the Gila (*Centurus uropygialis*) and Arizona (*Dryobates arizonæ*) drew the most attention from me—perhaps owing to their limited distribution within our country. In midsummer an occasional Gila Woodpecker ventured into the foothills, to prowl among the old mescal stalks, so numerous thereabouts; later on, by September 1, more were in evidence, and had pushed their range up to 5000 feet greater than when in their usual retreats (lowland valleys and mesa); rarely beating a tattoo or uttering a call; dividing their time between mescal and Opuntia cactus; and now and then inspecting an oak, from which they were generally driven away by a more pugnacious relative, the Ant-eating Woodpecker (*Melanerpes formicivorus*), a species that seemed as numerous as the

trees. Examples of *C. uropygialis* secured at this period, were all discolored about the forehead and chin with juice of *Opuntia* fruit.

Altho I well knew I was within the described range of *Dryobates arizonæ*, several days passed before a noise, leading one to the suspicion that it was the rapping of a small woodpecker, drew attention. It was not a loud sound, and being interspersed with periods of silence, made the clew somewhat difficult to follow; thus some time elapsed before reaching the origin of the noise. Here a ♀ *D. arizonæ* was working on an oak-trunk, not three feet above the base; while the trees around harbored unnumbered Bridled Tits (*Baeolophus wollweberi*), Lead-colored Bush-tits (*Psaltiriparus plumbeus*) and Rocky Mountain Nuthatches (*Sitta carolinensis nelsoni*). Very often did I run across a similar assemblage, but rarely were there more than one or two Arizona Woodpeckers in it. There is no recollection at hand, of noting above four adult woodpeckers of this species in view at once; more likely to chance upon a solitary individual than a pair at any time. The noisiest occasion I can accredit to the species occurred one spring day, when two adult females were located, perched upon a horizontal limb of a madrona, facing each other, and emitting a continuous volume of characteristic woodpecker notes, the effect being heightened by that peculiar muscular movement which accompanies the vocal utterances of some Pici. The continuity was possible by a relay system; and so engrossed were the participants, that I approached to directly under the limb and stood there at least two minutes, without being detected.

Taken as a rule, the Arizona Woodpecker is quite indifferent to one's presence; nevertheless it can be erratic at times. This is best observed during the breeding season, which may be counted as May here (this year only). Few male birds are then to be found, except on the lower declivities of the range, where they are nearly as difficult of approach as the largest members of the family.

There is a certain ravine here, that might with propriety be called Flycatcher Canyon. It was the delight of several of the species, that would be looked for in vain elsewhere in the range. So along this canyon, well up toward the neutral ground of oak and pine, the lonely Olivaceous Flycatcher (*Myiarchus lawrencei olivascens*) dwelt. It was a late comer tho, and not until June 9, did I secure any. On two occasions a pair were seen; all others as single individuals. Their note given at measured intervals was long drawn out, and of a single syllable. Tamelessness is of the usual Tyrannidae average.

The same canyon was the sole resting ground of such Olive-sided Flycatchers (*Nuttallornis borealis*) as were recorded. Spending odd days here between September 6 and 17, it contrived to form a temporary brotherhood with a near relative, the Western Pewee (*Contopus richardsonii*). An amusing situation was developed on several occasions; the two species were observed side by side, on some dead bunch of trees growing on the canyon's side. Affinity in color and movement, and similarity in note, however, did not offset the disparagement in size.

Jays—three representatives of the group here. The Arizona Jay (*Aphelocoma sieberi arizonæ*), of whom every collector coming within its habitat will have a changing opinion, as to the advisability of existence as a link in the avian chain of nature: Depending on whether you are out to study its habits; or whether an interview with a varied bird life be frustrated by *A. s. arizonæ* spying you out and declaiming the discovery with enthusiasm for many minutes. But after all, its personality overbalances the hereditary meanness. Economically, it certainly does no harm. For dissect one and examine its craw any time before the acorns come, and you will find remains of Carabid, Elator, Buprestid and other beetles; true bugs of



many kinds; and those little dark gray moths that cling so cunningly to bark of various trees during the day—almost invisible to human eyes, but easy forage for the Arizona Jay. How well it assists in Uncle Sam's reforestation problem is apparent, when a steep hillside, devoid of arborescent growth, is watched closely during acorn season, provided it is the one selected by the Jays for their winter granary. The number of birds you would see journeying back and forth in the course of a few days might cause a mental convulsion, let alone attempting to count the acorns deposited. The ground universally selected contains much rubble, running to small fragments, say the size of a man's fist. Generally the acorns (for several are often deposited in one spot) are pushed under the side of the stone nearest to or facing the ravine; a wise provision for the birds' future, and a fortunate one for the possible future oak, as it guards against washing out in times of heavy rain; likewise conserving moisture in the months of drouth. The spring and summer of the present year (1907) were dry, very dry; yet in many slopes seedling oaks were growing vigorously. No parent oak in the vicinity grew at a higher level; and as the acorn is quite too heavy to be transported by wind action—at least upward—one may figure out conclusions.

Perhaps the Woodhouse Jay (*Aphelocoma woodhousei*) is resident, but I am convinced that, if so, they number but a fraction, when compared to the portion of the species that migrate here; and it was the visiting body that came to my attention. None were seen until September 21; next day found it fully represented; so by October 1 a comparative estimate of numbers would put this species and *A. s. arizonæ* on equal basis, with balance of power held by the Long-crested Jay (*Cyanocitta stelleri diademata*) which held forth in the pine zone until the end of September. After that, a few adventurous individuals wandered down as low as 4500 feet.

Barren was the opportunity for the study of water birds. In addition to an infrequent visit by Killdeer (*Oxyechus vociferus*), but a single kind came to be noted: A flock of eleven Black-crowned Night Herons (*Nycticorax nycticorax naevius*) spending the morning of September 10 in a deep narrow canyon near the 4000 foot level.

Benson, Arizona.

### SOME NOTES ON THE GREAT BLUE HERON

By H. W. CARRIGER and J. R. PEMBERTON

FOR a good many years a large number of Great Blue Herons (*Ardea herodias*) occupied a large nesting colony upon the tops of some eucalyptus trees at Redwood City, California. Thirsting for knowledge, and particularly bird-egg knowledge, the Redwood small boy made yearly trips to the heronry to study the inhabitants thereof, and so vigorous and attentive were their studies that the proud and classy Blue Herons declared a moving day, and the spring of 1900 found the once fruitful Mecca of the bird-egg boys a dreary and lonesome spot, except for a bunch of English Sparrows, who took possession of the old nests.

Mr. Chase Littlejohn, well known to most Cooper Club members, often wondered where the colony had moved to because the birds were as numerous as ever upon the marsh land between Redwood and the Bay. One day in 1902, Mr. Lit-

tlejohn happened to be hunting Clapper Rails' eggs when he stumbled upon the new heron colony, away out on the marsh, and flat upon the ground.

In May, 1903, the writers made a flying visit to this interesting heron colony and determined to visit it at some later date with the purpose of making a study of the colony.

Early in the morning of April 14, 1907, we got into a row boat at Redwood City and commenced a four mile row, following the winding sloughs. Many shore and marsh birds were surprised. At this date most of the waders and sandpipers were in flocks preparatory to their migration. Among the birds seen were *Numenius longirostris*, *Symphemia semipalmata inornata*, *Ereuntes occidentalis*, *Rallus obsoletus*, *Nycticorax naevius*, *Calidris arenaria*, *Merganser serrator*, *Arenaria melanocephala*, *Melospiza pusillula*, several species of ducks and a few gulls. An occasional solitary Blue Heron flying overhead kept us reminded of our



A CORNER IN THE TERRESTRIAL COLONY OF GREAT BLUE HERONS;  
YOUNGSTERS IN WADING

quest and the rowing was tiresome we kept at it.

Soon the slough connected with a large open channel and the Bay itself was seen. Thinking we must be near the colony, we landed on the bank and saw it to be about a half-mile further on. Herons were arriving and departing from all directions, and with our glass we could see some 50 or 60 herons standing around.

Resuming rowing we made for a landing place within one-fourth mile of the colony and another peep was taken from the bank. This time a new scene was displayed. The Herons had seen our approach and no flying birds were evident, while those which were at the colony before, were now walking stealthily away. Wishing to get a photograph of the flock of birds we rowed rapidly toward them, and altho completely hidden from the birds while rowing, when we made our final landing the birds had moved a considerable distance away, too far to photograph. As soon as we stood out on the marsh land and took a few steps toward the flock,



they rose as one and finally lit about a quarter of a mile away where they remained until our visit was over.

Young birds not quite able to use their wings were walking away about 100 yards off. Others not so large were hiding in bunches of grass and in the shelter of slough banks. When we were within the colony proper one-third of the nests were vacant and their young were walking around somewhere, to be kicked up by our feet almost anywhere.

The colony consisted of 49 nests and covered an area of about 200 feet by 100 feet. The nests were built always upon the very edge of the little sloughs of three or four feet depth, and were sometimes within five feet of each other and as far as twenty feet apart; but usually about ten feet was spaced between nests. All nests were constructed of the dried branches of the common marsh grass, and were quite

serviceable structures. They varied in size from two feet in diameter flat on the ground to four feet across and 14 inches in height. Nearly all nests were built upon an old one, and probably in a few years quite high monuments will be erected. The contents of the nests varied from fresh empty nests to those containing young about big enough to find their way home again. Sets of eggs were 2, 3 and 4, and both fresh and incubated eggs were plentiful.

The young birds were of course the most interesting to study. One lone youngster just hatched was trying to eat up his shell. The noise of the squeaking beauties(?) at times was quite inconceivable, especially from the ones about three weeks old. These had raised a good growth of feathers, and being about the size of good "broilers" were



TYPICAL NEST AND EGGS OF THE GREAT BLUE HERON

able to be both seen and heard.

They would make frantic efforts to spear us when we were within ten feet, and especially during the focusing of a camera they were never still. So rapid were their spear-like thrusts that most of the pictures are a blurred streak. The young birds which still retained their down were the least interesting. They would sit quietly until poked, when they would rise up and make ready to bite the intruder. Their noise was quite different from the large birds, being a continual low lonesome cluck.

Some of the little fellows were suffering from the heat and it is probable that when weak from hunger many die under the blistering summer sun.

Some of the young birds were about the size of a Bittern, and these were con-

stantly walking about the colony, occasionally walking about in the water as one photo shows. It is interesting to imagine how such apparently restless birds could ever stay within the limits of a nest in the top of a tall tree.

One very interesting feature of the young birds were the differences in the sizes of one brood. In one nest there were four young, the smallest about the size of a quail, while the largest would have outweighed a Canvasback. In some nests a dead bird could be seen beneath the feet of its brothers, and many nests were seen with only two half-grown birds in it and with the rotting remains of the other two birds beside the nest.

After collecting several sets of eggs we left the heronry and took our long tiresome row back home, swearing to come "via launch" next time. But on May 12th we again visited the colony by rowing out, and found everything much the same as it was a month before. Young in all stages of growth were present, also fresh eggs.



THE NOISY AND COMBATIVE STAGE

Allowing three weeks for eggs to hatch, and four, tho five is probably more correct, for the birds to be reared, our observations tend to show that the colony was in active operation from March 1st to July 1st.

Several Japanese oyster men were seen on our second trip and they told us that no one ever went near the colony. It is thus evident that the herons have now an isolated and safe place to rear their young, and also are in the center of their fishing ground which is quite an item considering that at their old colony food had to be carried six or seven miles to their young.

The eggs are of the usual pale greenish blue color, and sets number 2, 3 and 4, with three and four about equal in occurrence. The eggs vary somewhat in size from a short fat variety to a long sharply pointed size. The average of 8 sets at hand is  $2.48 \times 1.80$  inches. This shows them to be .30 inches wider than most zoological works give them to be.

*Stanford University, California.*

## NOTES FROM SAN CLEMENTE ISLAND

By C. B. LINTON

SAN Clemente Island is twenty-two miles long by four miles wide. The greatest altitude is about 1500 feet. The northwest one-half is very barren, supporting only scrubby sage brush and cacti, with an occasional holly bush in the larger ravines. In this portion of the Island, about four miles from the westerly end, is situated Howland's Ranch, on Howland's Bay.

In the canyons of the northeast coast of the southeast half, is found an abundant growth of holly, sage, ironwood and wild cherry trees, the latter often reaching a height of twenty to thirty feet, and in many canyons forming dense miniature forests. Most of the canyons in the vicinity of Mosquito Harbor are deep and precipitous and in places well-nigh inaccessible.

It was in these larger canyons that most of the collecting was done, altho trips were often made to other points. Smugglers' Cove is situated almost directly opposite Mosquito Harbor, on the southwest coast. The coast and adjoining hills here are similar to the northwest portion of the island. Visits were made to Clemente in January, February, March, April and October, 1907.

I wish to tender my sincere gratitude to Prof. Joseph Grinnell for the time he has devoted to the identification of the various specimens submitted; also for his untiring patience in coaching and instructing a beginner. I am indeed deeply indebted to him for many favors extended and many suggestions offered during my several trips to the Santa Barbara Islands. Mr. Grinnell has carefully examined the specimens secured and pronounces the following identifications correct.

**Colymbus californicus.** American Eared Grebe. Large flocks were seen near the northwest end of the island. December to March inclusive, several specimens preserved.

**Ptychoramphus aleuticus.** Cassin Auklet. Frequently seen near shore; especially common near Ship Rock, west coast, and in the channel between Catalina and San Clemente Islands.

**Larus californicus.** California Gull. Fairly common in January and February.

**Larus heermanni.** Heerman Gull. Abundant everywhere. Those observed in October were in winter plumage, gray heads; while those noted during December, January and February were all in summer plumage, snowy white heads. Examination showed the crops of many specimens to be filled with shrimps, obtained from the kelp fields 50 to 300 yards off shore.

**Sterna maxima.** Royal Tern. Very common near northwest coast and Howland's Bay, during October, December and January; few seen after February 15.

**Fulmarus glacialis glupischa.** Pacific Fulmar. Often seen while crossing the channels; none observed near shore.

**Oceanodroma melania.** Black Petrel. A dark petrel, probably of this species, seen on several occasions while crossing the channel.

**Phalacrocorax auritus albocillatus.** Farallone Cormorant. Fairly common along the northeast coast. One flock of 200 or more seen near Howland's February 5. Several specimens preserved.

**Phalacrocorax penicillatus.** Brandt Cormorant. During January and February, immense flocks were seen daily, flying from their roosting places on the rocks of the northwest coast to their feeding "grounds" along the northeast shore. Both brownish young and adults were numerous. Specimens in full breeding

plumage, i. e. with white filaments along the sides of head, neck and back, were secured in February and March. Breeds in small numbers on the northwest coast.

**Phalacrocorax pelagicus resplendens.** Baird Cormorant. A few pairs were seen near Mosquito Harbor, during March. These were in breeding plumage (white flank patches). One specimen in winter plumage, taken in October.

**Pelecanus californicus.** California Brown Pelican. Frequently seen near northwest coast. Adults and immature specimens were secured. None were seen during late March.

**Aythya affinis.** Lesser Scaup Duck. Several ducks which I believe to be of this species, were seen during February. In October several thousand ducks, of several species, were reported off the northwest coast by fishermen.

**Ardea herodias.** Great Blue Heron. Several pairs are resident on the Island.

**Heteractitis incanus.** Wandering Tattler. During October and March, Tattlers were frequently observed feeding along the outlying rocks in the vicinity of Mosquito Harbor and Smugglers' Cove. In all, sixteen specimens were preserved.

**Actitis macularia.** Spotted Sandpiper. Fairly common on both coasts during fall and winter.

**Ægialitis nivosa.** Snowy Plover. Flock of fifteen or twenty seen on the sandy beach, Smugglers', October 15.

**Arenaria melanocephala.** Black Turnstone. Several seen near Smugglers' in October and April; twelve specimens were taken.

**Zenaidura macroura.** Mourning Dove. Not uncommon in the vicinity of Smugglers'. A few seen, in March, near Mosquito Harbor; very shy during that month but later becoming quite tame, feeding in the grass near camp. Seen in October. Breeds.

**Buteo borealis calurus.** Western Red-tail. Several pairs were nesting on the Island.

**Haliaeetus leucocephalus.** Bald Eagle. Found nesting in the larger canyons, one-fourth to one mile from the coast, during February, March and April. Several nests were visited and two fresh sets of two eggs each taken, February 15, and March 15. Scattered about the base of the cliffs in which the nests were situated, were numerous skeletons of sheep and young lambs.

**Falco peregrinus anatum.** Duck Hawk. One pair seen near the northwest coast and another near Mosquito Harbor. One pair, at least, bred on the Island this year.

**Falco sparverius.** Sparrow Hawk. These trim little falcons were occasionally seen hovering over the brushy mesas and cacti-covered hillsides of the northeast coast, and inland. Only one specimen, a male, was secured. This differs somewhat in general coloration from specimens taken in the coast district of the mainland, but the normal variation in the species is great.

**Pandion haliaetus carolinensis.** American Osprey. During January and February a number were seen. In March they were observed remodeling old nests along the northeast coast and two fresh sets were found: March 9, one of three; March 31, one of three. On April 2, I visited a colony of twelve or fourteen nests on the southeast coast. Here, incubation ranged from fresh to two-thirds advanced. One set of four eggs was secured, and another found; one egg of the latter set had been crowded out of the nest onto the rocks and broken. Nests varied in size from a few sticks and pieces of sea-weed to immense piles of sticks and kelp four to six feet in height by three to five feet in diameter, cavity of the largest being (diameter) twelve inches by (depth) four inches. The majority of nests were built on columns of rock standing directly in the surf.

**Speotyto cunicularia hypogaea.** Burrowing Owl. The small rocky ravines extending halfway up the hillsides from the shore of the northeast coast, seemed to be the favorite hiding places of the Burrowing Owls during the day. The specimens secured differ very slightly, or not at all, from those of the mainland coast district. Resident.

**Ceryle alcyon.** Belted Kingfisher. Several seen.

**Sphyrapicus varius nuchalis.** Red-naped Sapsucker. While hunting among the cherry and holly bushes in a narrow valley in the high mesa above Mosquito Harbor, October 11, we secured two immature sapsuckers of this species. No others were seen on the Island.

**Colaptes cafer collaris.** Red-shafted Flicker. Frequently seen and heard in the canyons near Mosquito Harbor. An adult ♂ and ♀ secured in October.

**Aeronautes melanoleucus.** White-throated Swifts. Seen on several occasions. March 7, observed entering crevices in the cliffs near Howland's Bay.

**Selasphorus alleni.** Allen Hummingbird. Fairly common in suitable localities. April 1, I found a nest containing two fresh eggs; April 7, another containing one fresh egg, and two unfinished nests. As I left the Island April 7, I only preserved the complete set and nest of April 1. These nests were composed of wool and spiderwebs, partially covered with lichens and placed on low-hanging twigs of holly and cherry bushes in the canyons.

**Tyrannus verticalis.** Arkansas Kingbird. One seen near the spring, Mosquito Harbor, April 3, and on the 5th I secured an adult ♀ in the same locality.

**Sayornis saya.** Say Phoebe. Fairly common over whole Island, excepting the Smugglers' Cove region.

**Sayornis nigricans.** Black Phoebe. Seen only along northeast coast. March 20, an unfinished nest was found fastened to the side of a cave just above high tide mark. One specimen preserved.

**Empidonax difficilis.** Western Flycatcher. The first pair was observed April 1, in a deep gorge near Mosquito Harbor. April 3 several were seen and secured. Only three or four noted during October.

**Otocoris alpestris insularis.** Island Horned Lark. Very common over the whole Island. Large series secured.

**Corvus corax sinuatus.** Mexican Raven. Abundant resident. Nesting in the cliffs, often on ledges directly over the water. A large series preserved. Among these were several specimens that would easily have passed for the much sought for "Clarion Island Raven." It is my opinion they are *Corvus corax sinuatus* birds-of-the-year. The size and general appearance coincide with the description of the Clarion Island Raven. Altho common at present the ravens are being rapidly exterminated thru the use of poisoned carcasses, by the sheep men who (rightfully) accuse them of killing many young lambs.

**Sturnella neglecta.** Western Meadow Lark. Common on the mesas of the coast, and inland.

**Icterus bullocki.** Bullock Oriole. One adult male secured March 31.

**Carpodacus clementis.** San Clemente Linnet. Abundant resident everywhere. Several nests containing incubated sets were found in the sheds at Howland's, March 1. Others were found near Mosquito Harbor, in the cacti and sage. March 9 to April 7 a large series of skins were preserved. The feathers about the base of the bills of several specimens were stained with the juice of the "cactus apple." This fruit forms the chief food of many island birds during certain seasons.

**Zonotrichia querula.** Harris Sparrow. While watching the House Finches, Song and Gambel Sparrows drink and bathe in the sheep troughs at the windmill,



Smugglers' Cove, October 15, I was surprised to see a Harris Sparrow appear among them. Not having my gun I waited until the sparrow had finished a bath and returned to the feeding grounds under the holly bushes nearby. I then secured my "aux" from my father and awaited the sparrow's return for another drink; this it did in about half an hour. This specimen differs slightly from two specimens (of the same month) in my collection, from Lawrence, Kansas.

*Zonotrichia leucophrys gambeli*. Intermediate Sparrow. Very common winter visitant.

*Zonotrichia coronata*. Golden-crowned Sparrow. Common winter visitant.

*Junco hyemalis thurberi*. Sierra Junco. One specimen, secured at White Rock Spring on the northeast coast, October 13, is probably *thurberi*.

*Amphispiza belli*. Bell Sparrow. Common resident on the brushy portions of the northwest half of the Island.

*Melospiza clementæ*. San Clemente Song Sparrow. Abundant resident. Common in the yards at Howland's, nesting in the scrub cacti and vines within a few yards of the hacienda. March 31, three nests were found in the corral near the stables; one contained four young one week old, the others having incomplete sets. These nests were built a few inches from the ground in the center of the cacti beds, which, being covered with a thick growth of vines, completely hid the nests. A large series of skins preserved.

*Passerella iliaca insularis*. Kadiak Fox Sparrow. Three specimens secured in the stable yards, Howland's, January 23 and February 7. October 5, February 8, and April 1 I secured other specimens near Mosquito Harbor.

*Pipilo clementæ*. San Clemente Towhee. None were seen within eight miles of the northwest coast, but they were very common near Mosquito Harbor. The "catbird" call of *P. m. megalonyx* of the mainland, said to be "unknown to this bird", I often heard; in fact it was the common note heard at this season. *P. clementæ* is a shy and silent bird during breeding season, which probably accounts for the statements of observers during that period, limiting his vocal attainments to the "towhee" call. During October the towhees were observed shaking the overripe cherries from the twigs of the low hanging branches, then flying to the ground and securing the well-earned delicacies. This curious operation I often watched them perform.

*Piranga ludoviciana*. Western Tanager. Several seen and two specimens secured near Mosquito Harbor.

*Piranga rubra cooperi*. Cooper Tanager. A ♀ specimen was secured by my father, October 11, in the holly brush in a narrow valley on the high mesa near Mosquito Harbor. Several Western Tanagers were observed here.

*Lanius mearnsi*. San Clemente Shrike. Fairly well distributed over the whole Island but extremely shy. March 7 I secured a ♀ with nest and five eggs, incubation two-thirds. This nest is typical of the species; composed of dry twigs and weed stems, thickly lined with rootlets and wool and well concealed in the thick branches of a holly bush in a ravine near the northwest coast. Another nest was found March 8 near the coast midway of the Island, containing one downy young and two infertile eggs. Near Mosquito Harbor, March 19, I secured a ♀ and five fresh eggs. The males were extremely shy, giving the alarm from their lookout perches and leaving the vicinity of the nests immediately upon sighting the intruder. The three nests measure in inches as follows:

Outside { depth, 4.50, 3.25, 3.  
diameter, 9, 7.80, 7.50.

Cavities { depth, 2.20, 2.10, 2.  
diameter, 3.25, 3.20, 3.50.

**Helminthophila sordida.** Dusky Warbler. Common from January until late September, in all the large canyons. Rare on the Island in October, but common on the mainland coast.

**Dendroica auduboni.** Audubon Warbler. Common, October to February inclusive.

**Anthus pensilvanicus.** American Pipit. One specimen secured, October 18, on the high mesa.

**Mimus polyglottos leucopterus.** Western Mockingbird. Fairly common. On the low cacti-covered mesas back of Smugglers' Cove, April 2, I found several unfinished nests in the cacti and holly bushes. The feathers of the foreheads and skins of several specimens were stained by the juice of the cactus apples. The Mockingbirds of the islands have been reported by some collectors as being somewhat different from *M. p. leucopterus*. This theory we have clearly disproved, the specimens taken being identical with mainland specimens, as far as discernible by us.

**Salpinctes obsoletus pulverius.** San Nicholas Rock Wren. Fairly common in suitable localities over whole Island. Thirteen specimens preserved during October. In coloration of the back feathers, specimens range from rich brown to very pale grayish-brown, some of the browner ones comparing very closely with the coast mainland specimens.

**Thryomanes leucophrys.** San Clemente Wren. Very common on all parts of the Island, especially so on the brush and cacti-covered hillsides of the northeast coast.

**Hylocichla ustulata.** Russet-backed Thrush. Common in the larger canyons in October.

**Hylocichla guttata nana.** Dwarf Hermit Thrush. Common over entire Island, October until April.

**Ixoreus naevius.** Varied Thrush. Near Howland's in January and February several specimens were taken. Several secured in the canyons near Mosquito Harbor, March and April. None seen during October.

*Long Beach, California.*

#### SOME HINTS ON THE PREPARATION OF AN OOLOGICAL COLLECTION

By ROBT. B. ROCKWELL

THE time has not long passed when egg-collecting as a fad was very popular in this country, and as a result a great many collections were formed in different parts of the country, many of them thru their vast size being veritable monuments to the rapacity of the "collecting mania." This unnecessary and in many instances wanton destruction called forth the just protests of a growing army



of bird lovers and students, who while they realized the necessity of judicious collecting in all lines of scientific work, entered a strenuous objection against the collecting of vast numbers of nests and eggs, most of which found their way into the dusty drawers of private collections, far from the reach of the public or of research work along oological lines. So pronounced has this feeling against "egg-collecting" become within the past few years, that many collectors have stopped entirely and many others have become much less active. In the case of the many very large private collections it is to be hoped that the great destruction to bird life caused in amassing the collections may be counteracted to some extent, at least, thru their donation to some public institution where their educational value would be of some importance, while a great many of the smaller collections will probably be disposed of in a similar manner or else made a part of larger private collections.

It is to be hoped that egg-collecting as a fad will continue to receive the disapproval of bird-protectionists and of the public in general, but it is equally desirable that in their zealous espousal of the cause, they do not burden the true oologist with the unpleasant term "egg-collector"; for the judicious collecting of nests and eggs is just as important and just as necessary a part of the study of ornithology today as it was forty years ago (altho possibly on a somewhat smaller scale) and the student of birds' nests, eggs and their breeding habits who has nothing left to learn need only proclaim the fact and we will hail him as the peer of all our revered pioneer ornithologists.

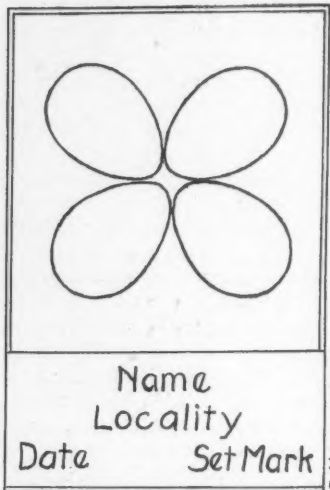
But in order that a collection of birds' eggs, either public or private, may be of any scientific or educational value it must be arranged and labeled in a thoroly comprehensive manner. No other class of specimens requires careful labeling so much as eggs, for where is the man who can tell the difference between eggs of the Rough-winged and Violet-green Swallow, or between those of the Oven-bird and the Long-tailed Chat in a strange cabinet, and of what possible use can a collection be put to unless the observer knows definitely what he is looking at?

The writer has spent some ten years in experimenting with the many different ways of labeling eggs in the cabinet, and what at first seemed a very simple thing indeed, has thru repeated trials and much studying grown to be a rather complicated proposition. It is therefore the purpose of this paper to set forth some of the results of these experiments, with the hope that some of the CONDOR readers may find some hints herein that will be of use to them. Many of the ideas will probably prove old and hackneyed to some of the readers, but if benefit derives to even a few the purpose of the paper will be fulfilled.

The question of proper housing for the collection is far too broad a question to deal with at length. I have used several designs of cabinets, all of which have proven more or less satisfactory, provided the vertical spacing of the drawers was economized and the drawers ran smoothly. I have also experimented with the Cambridge Cans: metal boxes with a tongue and groove flange on the cover and clasps which make the case air tight. These cans are fitted with tin runners which are adjustable according to the depth of the drawers or trays, but while the theory may be correct the mechanical imperfections of all of these cans I have seen make them impossible for a finely prepared collection. By far the finest case I have seen is the one being adopted by many museum and private collectors and is giving perfect satisfaction. It is of metal strongly cased in wood with a swinging door which closes air-tight by means of binding clasps and a rubber pad. The drawer runners are of hard wood and very smooth and the trays are of hard wood with compo-board bottoms. Taken in all it is an ideal cabinet (in everything but gen-

eral appearance) being dust, insect, and mouse proof, with beautifully smooth sliding trays, and every inch of space economized, leaving very little to be desired.

The next item is probably trays. Except for a number of "freak" shapes there are but two styles of trays, the square and the oblong. I will not try to change any reader's opinion as to the proper shape for trays, but if you haven't tried the square trays, just experiment a little and no argument will be necessary.



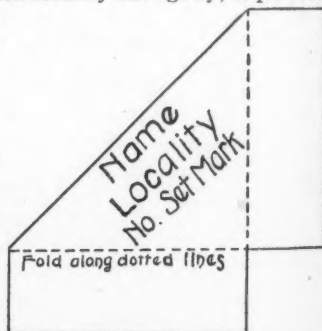
ILLUSTRATES HOW THE OBLONG TRAY  
SHOULD BE LABELED

Trays  $2\frac{1}{2}$ , 3, 4, 6, and 8 inches square will accommodate all sizes of eggs and sets. The two smaller sizes work well if made  $\frac{3}{4}$  inch deep, while the 6 and 8-inch trays should be at least  $1\frac{1}{4}$  inches deep, as the large eggs roll about in a shallow tray. The 4-inch tray should be made in two depths so as to conform to either of the other sized trays, as trays of two depths in the same drawer look badly.

After many trials I went back to cotton as the best material upon which to lay the eggs. Sawdust dyed black gives a beautiful effect to a drawer of eggs and brings out the color values of the eggs in good shape, but it is very dusty, forms an ideal home for many forms of insects, is heavy and easily displaced by any slight jar. Grated cork, plaster paris, and similar substances have all been thoroly tried but have proven uniformly unsatisfactory. Colored cotton of any kind, while rather pleasing to the eye upon first glance, destroys the fine shades of color of the eggs, and makes a display rather of cotton than of eggs. A fine

grade of white cotton shows the exact shade of each egg, without detracting from it in the least; can be made to hold the eggs nestled securely but lightly, to prevent their rolling; is free from insects, practically without weight, can be handled pleasantly and easily and is eminently the most satisfactory of all materials for this use.

The question of how to label a set of eggs in a tiny tray, without detracting from the general appearance of the eggs themselves is the one thing which has caused me more sleepless nights than any other phase of this subject. I tried laying tiny slips with the name of the species upon the cotton beside the eggs, but they were always crooked or out of place and gave the drawer a decidedly bedraggled appearance. Little blocks of wood with the label pasted on and set in front of each tray looked very well, but the weight of the wooden blocks and the large amount of work necessary to complete the labeling caused this to be abandoned. Little labels stuck vertically in front or back of the eggs in the tray produced a remarkable display of labels with no eggs to speak of in sight. After almost despairing of ever solving the problem I hit upon the plan of making a three-cornered

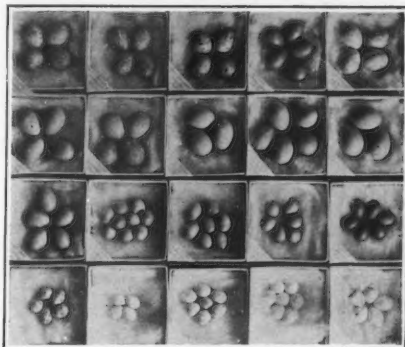


TRIANGULAR LABEL FOR THE SQUARE  
TRAY

label to fit on a corner of the tray with ears or laps to paste on the sides of the tray. The accompanying sketch and photos will show how well this overcame all objections. There is sufficient room for all necessary information on the label, it is easy to make, is permanent when once pasted in place, and most important of all does not interfere with the eggs in any way, and does not detract from the general appearance of the display. I have given these labels a thoro trial and they seem to fill the bill perfectly. For use with the oblong trays a label pasted across the front or back of the tray, leaving the exposed portion of the tray square, has proven the most satisfactory; but where it is necessary to conserve space this label is practically useless, as it takes up so much room.

Probably every one who has a collection has the eggs arranged to conform to the A. O. U. nomenclature, which is without question the best plan of arrangement. It is also very advantageous to arrange the eggs so that the families or genera may be separated from each other. Little strips of wood about a quarter of an inch wide and the same height as the tray, placed between the trays of different genera, accomplish this neatly and easily and thus show at a glance the different types of coloration in the family or genus. These strips can only be used where the trays do not exactly fit the drawer, but as it is very seldom that a drawer is found that will hold a certain number of trays without any waste space this difficulty is of very little moment. On these strips may be pasted the family and generic names if desired.

If one wishes to have drawers fit the trays exactly, for trays of the size mentioned above, a drawer 24 inches square inside is the most convenient size, as 24 is exactly divisible by 3, 4, 6 and 8.



CORNER OF A CABINET DRAWER SHOWING HOW INCONSPICUOUS THE TRIANGULAR LABELS ARE

Without any question the data accompanying any collection of eggs is the most important feature of the collection and there are many methods of housing the data slips. The old-fashioned way was simply to lay the slips loosely in the drawer with the eggs, which is not only dangerous to the eggs, but also leaves many opportunities to lose the data, without which the sets are useless. A book composed of large envelopes into which the data may be slipped works fairly well, but has many disadvantages. The best idea I have seen in this line is one which originated with the well known oologist, Fred M. Dille, and which covers every requirement fully. It is no less than a modification of the vertical card system, in which a large durable envelope with a data blank printed upon it is used instead of the cards. The salient points of each data are written on the envelope, the data enclosed in the envelope and then filed in vertical card files according to the A. O. U. number. The advantages of this system are many: by repeated handling the original data becomes soiled and often mutilated (especially is this true in public collections) while the envelopes if made of durable manila paper will stand a great deal of handling without injury, and even if they are worn out a new one may be copied from the original without injury to the set represented. Again, as nearly every collector has a different sized data blank it would be practically im-

possible to file these slips under the vertical system unless they were enclosed in something of uniform size. And last but not least the great ease with which any desired data may be found in a vertical system of this kind makes it the handiest system imaginable.

Another idea which Mr. Dille has worked out is an "autograph data" blank, which is of the same design as his regular blanks, but which he sends to collectors who furnish him with sets and has them write the original data on *his* blanks but over their own signatures, thus giving him the original data on uniform blanks.

A tabulated register of all sets coming into and leaving the collection, which



A SERIES OF THE EGGS OF THE AMERICAN CROW  
SELECTED TO SHOW VARIATION

gives the date, species, locality, collector, incubation, from whom secured and to whom disposed, is also a great assistance in a well ordered collection, altho many collectors seem to feel that this is superfluous.

One might continue indefinitely to jot down the hundreds of little hints and ideas that are produced by continuous experimenting, but I have covered the points which have always given me the most trouble and I hope they may prove of benefit to the reader interested in this line.

*Denver, Colorado.*

## FROM FIELD AND STUDY

**Dates that are not Data.**—Possibly no idiosyncrasy of the collector causes more trouble than the habit of abbreviating dates on labels, for instance 1. 2. 07, or better still, 1 | 2 | 07. Does this mean January 2nd, 1907? In some cases it does; but it may mean February 1st, 1907, and the only way for the unfortunate ornithologist to guess the meaning is to have skins from the same collector having the day higher than twelve, thus 13. 2. 07. Even this is not certainty; for the collector sometimes changes his formula and it requires an expert in plumage cycles to decide which is which.

There are variations to this that once understood are not so confusing; 1. II. 07 means February 1st, 1907, but how about 19. 1-11. 00? This is happily confined to Russian collectors as far as I know and I think should read November 1st, 1900, but whether old style or new style is not for me to say.

Moral: Write the month plainly in letters of ink that fade not, forgetting not the day and year of reckoning.—J. H. FLEMING, *Toronto, Ontario*.

**Destruction of Imperial Woodpeckers.**—Recently there came to my knowledge facts relative to a deplorable slaughter of the Imperial Woodpecker (*Campephilus imperialis*), not so very far south of our border.

Two prospectors (one of whom imparted the information given herewith) were working over a region in west central Chihuahua, some fifty miles west of Terrazas (pueblo), a mountainous and heavily forested country, much frequented by the bird in subject. One of the men had heard somewhere of the rarity of the species, and that it bore a commercial value, but, erroneously, his conception was that the bill was the portion in demand, and not the prepared skin. Working on this idea he shot some seventeen of the magnificent creatures in the course of a few months, and cut off the bills, figuring them at \$25.00 each, until, on reaching civilization again, he was chagrined to find his material utterly worthless.—AUSTIN PAUL SMITH, *Benson, Arizona*.



**A Curious Bird Tragedy.**—A male specimen of the Varied Thrush (*Ixoreus naevius*) which had met death in an unusual manner came into my possession some time ago. It was found by my brother beneath a California live oak after a spell of rainy weather. As the accompanying illustration shows, a portion of an acorn shell was wedged upon the tip of the upper mandible, in such a way that it pressed firmly against the crown. Upon skinning the specimen, severe skull injuries were found, caused by the bird in its endeavor to remove the acorn.

The bird probably forced the acorn upon its bill while digging for insects among the leaves. It was in good condition, proving that death came before starvation could emaciate its body.—CHARLES H. RICHARDSON, JR., *Pasadena, California*.

VARIED THRUSH KILLED BY ACORN WEDGED UPON THE BILL

**A Vermillion Flycatcher in Los Angeles County, California.**—I desire to record the taking of a Vermillion Flycatcher (*Pyrocephalus rubineus mexicanus*), male, at El Monte, California, February 8, 1908. It was taken in the willow-bottom about a mile from that town. The bird was not shy and acted about the same as any other bird of this family.—HOWARD W. WRIGHT, *Pasadena, California*.



**Junco hyemalis hyemalis.**—While collecting in the hills back of Palo Alto, California, on November 24, 1907, two specimens of *Junco h. hyemalis* were procured from an unusually large flock of Juncos. By following the birds from tree to tree across an orchard I was able to identify three more of these Eastern Juncos from the majority of the flock which were *Junco h. pinosus*. I have often looked for these rare winter visitors, but these two are the first I have ever been able to collect. The specimens are indistinguishable from specimens of *Junco h. hyemalis* from Wisconsin.—J. R. PEMBERTON, Palo Alto, California.

**Brain Parasite in White-necked Raven.**—During a tramp about the foothills of the Whetstone Mountains, Arizona, May 25, 1907, my attention was directed to a White-necked Raven (*Corvus cryptoleucus*) some forty feet overhead, by its strange circular flight and gyrating movements. No birds of its kind were in sight at the time, and its indifference to my presence also surprised me; so after some moments of observation, I brought it to the ground with a charge of buck-shot.

In skinning the bird, close examination was paid to the brain-case and orbital region, and I was rewarded by finding, directly back of the eyes, and extending partly into the brain, a parasite more than an inch in length, about the thickness of wrapping twine, pale yellow in color. The parasite showed considerable activity for an hour or more, when immersed in water.

The bird's sight may or may not have been impaired, tho cursory notice of the eyes, after being wounded, and before it expired, showed nothing unusual. Notwithstanding its size, the parasite must have been of recent date, with rapid growth, as the bird was an adult ♂, and it would seem unlikely that any animal in the fierce struggle for survival in nature, could exist for a year or more in a defective mental state, as this bird's actions would clearly indicate.—AUSTIN PAUL SMITH, Benson, Arizona.

**Goonies of the Desert.**—Those of us who have undertaken voyages across the ocean will readily recall the almost constant presence of goonies, or albatrosses, which fly along in the wake of the boat closely scrutinizing the sea surface for any sort of refuse that may serve them as food. In crossing the deserts of New Mexico, Arizona, and southern California recently, I noticed a similar habit on the part of the ravens. As I sat on the observation platform at the rear of the train, I repeatedly saw these goonies of the desert fall in behind the train, following along above the track evidently on the lookout for scraps thrown from the diner. The birds were nearly always in pairs. In case the grade was heavy, as is the climb up to San Geronio Pass out of the Salton Sink, the ravens could easily keep up with the train, even when they now and then alighted to investigate something of suspected interest. Elsewhere the birds were easily distanced by the train. We can infer that these scavengers regularly follow the trains back and forth across the desert, securing a substantial addition to their primitive food supply.—J. GRINNELL, Pasadena, California.

**The Blackburnian Warbler Noted at Ft. Brown, Texas, December 21, 1907.**—A single bird observed for several minutes in the pecan trees that line the drill ground. As it came within a dozen feet of where I was sitting, on several occasions, all doubt as to identity was precluded. Probably a ♂ adult.

Heavy fogs, with some rain and considerable wind, characterized the two preceding days, as well as the morning of the day in question. And as a careful search disclosed no other of the species or genus, it can probably be counted only as a tempest-tossed individual adding a very late date to the autumnal migration, within the U. S., of *Dendroica blackburnia*.—AUSTIN PAUL SMITH, Benson, Arizona.

**How Large a Bird Can the California Shrike Kill?**—On February 6, 1906, I witnessed a California Shrike (*Lanius ludovicianus gambeli*) overtake and kill a female Golden-crowned Sparrow (*Zonotrichia coronata*). The sparrow was pursued in the open, but the shrike gradually gained on it, forcing it to seek the protection of a thick bush. Here again, the sparrow employed all its faculties to elude its pursuer, but was finally overtaken and killed.

On examination of the victim, the skin of the neck was found to be cut and the vertebra broken. The shrike was shot and proved to be a female. I have known shrikes to kill birds the size of a Western Chipping Sparrow, but never any as large as *Zonotrichia coronata*. It would be of interest to know how large a bird the California Shrike can kill.—CHARLES H. RICHARDSON, JR., Pasadena, California.

**The Red-winged Blackbirds of Colorado.**—Following the suggestion of Prof. W. W. Cooke of the U. S. Biological Survey, the writer undertook to collect a series of *Agelaius* thruout the fall and early winter, for the purpose of ascertaining definitely what form occurred in the vicinity of Denver during the winter.

With the assistance of Mr. L. J. Hersey of Denver, and Messrs Wm. and George Richards of Littleton, twelve birds were secured, at intervals of about one week. These were forwarded to the Survey and identified by Mr. Oberholser. Six of the birds were classed as *A. p. fortis*, the prevalent breeding bird in this section, while the remaining six were classed as *A. p. neutralis*, the Great Basin form. So far as I know *neutralis* has not been definitely recorded for Colorado before.

The addition of *neutralis* to the Red-wings of Colorado, makes four forms of *Agelaius* found within the State: the typical form (*phaeniceus*), *fortis*, *arctolegus*, and *neutralis*. Just what ranges, seasons, etc., these different forms occupy can only be definitely determined by exhaustive field work, and should furnish a very interesting line of work to the field collectors of the State.

The following table does not seem to point to any positive conclusion, but it is probable that *neutralis* is generally found in this section after the bulk of *fortis* has gone south.

No.	Date	Locality	Collector	Form
1	Oct. 5	Barr	Hersey	<i>fortis</i>
2	" 13	Littleton	Richards	<i>neutralis</i>
3	" 20	"	"	<i>fortis</i>
4	" 30	"	"	"
5	Nov. 2	Barr	Hersey	"
6	" 6	Littleton	Richards	"
7	" 12	"	"	<i>neutralis</i>
8	" 20	"	"	"
9	" 27	"	"	<i>fortis</i>
10	" 28	Barr	Hersey	<i>neutralis</i>
11	Dec. 3	Littleton	Richards	"
12	" 10	"	"	"

Littleton is located ten miles due south of Denver, while Barr is eighteen miles northeast.—ROBERT B. ROCKWELL, *Denver, Colorado.*

**A Death Struggle**—January 18, while collecting at Newhall, California, I wounded a Lewis Woodpecker. The bird was able to fly to another tree, and I noticed that some California Woodpeckers in a nearby tree became very much excited. As the Lewis Woodpecker lit on the tree trunk four California Woodpeckers attacked him evidently with the intent of driving him off. The Lewis started for another tree but a California flew at him from in front, and they both fell in the struggle that ensued. At this the other California Woodpeckers, which were joined by a few more, set up a violent chattering and when I ran up, to my amazement I found that the Lewis had hold of the California by the skull, two of its claws entering the latter's eyes and the other two entering the skull in front and behind! The Lewis Woodpecker was dead and the California so nearly so that it died while I was removing the former's claws.—HOWARD W. WRIGHT, *Pasadena, California.*

**Albinism of Scaled Partridge.**—A Scaled Partridge (*Callipepla squamata*) was brought to me November 19, 1907, by an acquaintance, who had shot it in the San Pedro valley, a few miles below Benson. The bird was an excellent example of semi-albinism. It was an adult female and had the dark edgings of the feathers, that give the species the scaled appearance in normal plumage, reduced to a minimum by a change of color. Most noticeable tho was the lack of white streaks on each side of the back, so conspicuous in the ordinary bird. The crest also was lighter than usual.

Sometime in September of the same year, Mr. O. had casually mentioned to me about wounding a "white quail," that he was unable to secure. This had slipped my mind, however; so when he handed me the specimen in subject, and remarked that he thought he had bagged his albino, it took me a few minutes to recall the incident. An ulcerated condition of the forejoint of one wing, apparent in preparing the skin, together with the fact that he had killed the bird in the same locality as the one that had escaped, would lend substance to his opinion.—AUSTIN PAUL SMITH, *Benson, Arizona,*

**San Geronimo Notes.**—While having a sort of *home outing*, as it were, among the firs on the back ranges of our ranch in the middle of September, 1906, with my brother, we noticed a number of Townsend Warblers (*Dendroica townsendi*), and found that quite a flock would come to feed around our camp. Several specimens were taken. These warblers often have been noted, and specimens taken, in winter and spring at San Geronimo, but all these heretofore have appeared to be single stragglers or occasional visitants. On this occasion, however, it would seem to appear as if the line of fall migration had spread out toward the coast in our locality.

On October 17, the first Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*) I have ever seen or heard of in Marin County were noted flying down the San Geronimo Valley. They came close enough for me to see that they were either young males, or adult males already in winter plumage. There is no reason why these birds should not cross thru our district, but the fact remains that they do not do so, save on rare occasions.

On October 28, 1906, the second Saw-whet Owl (*Cryptoglaux acadica*) was seen. I endeavored to add him to our collection by means of a stone, in the absence of other weapons, but my accuracy in this line seems to have lost something in the last thirty or forty years and he escaped, by a miracle(?).

A Rock Wren (*Salpinctes obsoletus*) spent the winter of 1906-7 with us, living among the rocks in a fill on the new railroad cut-off near our house. This little fellow became quite tame and would let me approach to within a few feet of him before taking flight. I was in hopes that he would find a mate and breed there, and so make a new breeding record for this valley; but in early spring he took his departure and did not return last fall. This species has only been noted as a straggler before this.

Another specimen of White-throated Sparrow (*Zonotrichia albicollis*), a female, was taken here on Dec. 11, 1907, and another of this species seen. California records of this bird are becoming quite numerous. It must either have a poor bump of direction, or be somewhat absent-minded when migrating.—JOSEPH MAILLIARD, *San Francisco, California*.

**Catalina Quail.**—Thru the courtesy of Mr. Howard Wright, of Pasadena, I have had the privilege of closely examining 16 more specimens of the Catalina Island Quail. Of these, ten are males and six females. They were taken at Middle Ranch, Santa Catalina Island, February 1 to 4, 1908. The series bears out precisely the characters assigned to *Lophortyx catalinensis* in the original description of that form, which was based on six skins from Avalon. (See *Auk* XXIII, July 1906, pages 262-265.) When compared with a series of the mainland *valticola* the island birds are distinguished by larger size, especially of the feet, broadness of terminal barring on the posterior lower surface, and broadness of shaft-streaks on lower tail-coverts and flanks. An additional character which shows up in the larger series is the averaging more intense and extensive chestnut patch on the hind chest, in the male, of course. This does not seem to be due to the different "make" of the skins. An examination of individual variation in the two series shows that any one character alone is not diagnostic of every single individual. For instance, a small-footed island bird can be duplicated in that respect by an extra large-footed mainland bird. But at the same time the barring and streaking of the former renders it easily recognizable. Then in the matter of barring on the lower surface, a mainland female appears as heavily marked as the average island female. But at the same time the former has a decidedly shorter wing and weaker foot. It is therefore evident that there is a mergence of separate characters thru individual variation; and according to the criterion now apparently most popular, the island form would be given a trinomial appellation. The binomial, however, appears to me most useful, as it signifies complete isolation because of the intervention of a barrier.—J. GRINNELL, *Pasadena, California*.

**The Mountain Bluebird in Northern Arizona.**—The suggestion of Austin Paul Smith on page 50 of January CONDOR that the presence of *Sialia arctica* at Flagstaff, Arizona, in late February and early March might indicate that they are residents, hardly warrants that inference. The species reaches northern Colorado at about that time regularly in spring migration, spreading rapidly along the foothills at about the altitude of Flagstaff and reaching timberline (11,000 feet) by the last of March. They have been known to reach an altitude of 9,000 feet as early as February 23. Hence the Arizona record is not evidence one way or the other as to residence. However, for other reasons, some ornithologists suspect that in this latitude some few of the birds may remain in the mountains thru the winter, as in case of the robins.—JUNIUS HENDERSON, *Boulder, Colorado*.

# THE CONDOR

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## A NEW MUSEUM

There is shortly to be inaugurated at the University of California a new line of work, which will mean increased activity in the exploitation of California ornithology. Miss Annie M. Alexander, of Oakland, an alumnus of the University, has expressed her interest in the field of science, by providing means for the support for a period of years of a University department to be called the California Museum of Vertebrate Zoology. While this broad title has been adopted, so as to give room for future expansion, the immediate activities of those engaged in the work of the Museum will be concerned with mammals, birds and reptiles. It is proposed to have at least one party continually in the field throught the year. The objects will be not only the accumulation of specimens from our vertebrate fauna, but also the gathering of data on life histories, habits, and distribution, together with special ecological studies of certain localities. Miss Alexander will herself take active part in the field work, and there will be at least two others whose entire time will be devoted to the Museum's interests. The collections will be gathered with a view to providing research material of the best quality, accompanied by accurate information as to the natural conditions under which the species concerned were living. An additional feature of the new Museum will be the installation of several mounted groups of our native large mammals. It is also planned to secure material for some exhibition groups of certain birds and smaller mammals arranged to show typical associations from different

faunal areas. A building provided by the University is being planned especially for the Museum, and will be completed during the coming summer. Meanwhile preparations are in progress for active field work during the spring.—J. G.

## THE REHABILITATION OF THE CALIFORNIA ACADEMY OF SCIENCES

The income building and museum building of the Academy and most of their contents burned about noon, April 18, 1906.

All of the records of the Academy, many of the insect, plant, and reptile types, a few books, and two bird specimens (the types of the Guadalupe Petrel) were saved. A number of uninjured ethnological specimens were taken from the ruins after the fire.

The restoration began without delay. On the 29th of April, 1906, the first office was secured at 1806 Post Street. Here the work of soliciting donations from the learned societies of the world was begun. American societies and several foreign, British Museum, Zoological Society of London, etc., were written to directly by the Academy. The Smithsonian Institution kindly volunteered to take up the burden of corresponding with other foreign societies. As a result of all of this work the Academy now has thru gifts over ten thousand volumes on natural history.

The Academy moved into its present temporary quarters on Gough Street, near Sacramento, on June 1, 1906. About this time the first donation to the ornithological collection was received; viz., a Yellow-billed Tropic Bird, the gift of Mr. H. W. Henshaw of the Biological Survey, who had overlooked it when disposing of his collection some years ago. After a ten years stay in the Hawaiian Islands he returned to Washington, where he found this bird among his belongings, and presented it to the Academy, stating in his letter that he felt that it was "the beginning of a great collection".

The Galapagos Expedition put the Academy "on its feet" as far as material for a new museum is concerned. This Expedition left San Francisco on June 28, 1905, returning Thanksgiving Day, 1906, with some 5000 reptiles, 38000 shells, 1000 tertiary invertebrate fossils, about 13000 insects, about 10000 plants, 8688 birds, about 2000 eggs, many nests, and about 120 mammals.

The first paper on the results of the Galapagos Expedition, and also the first since the fire, was issued December 20, 1907, and described four new tortoises. The last paper published by the Academy before the fire was issued in March, 1906.

During the past year specimens as well as books have come in steadily. Dr. J. C. Thompson, U. S. N., has sent in large collections of Philippine reptiles and insects, making the Academy's collection of the former second to none. Mr. Anderson, Curator of Invertebrate Paleontology, has secured for the Academy large numbers of Pacific Coast invertebrate fossils and shells. Mr. R. H. Beck, chief field

assistant of the Academy, collected about 2000 water birds from the ocean in the vicinity of Point Pinos. The bird collection now occupies forty-five large zinc cases, and numbers over 11100 specimens, the result of exploration and the generous gifts of kind friends.

With the work on the ten-story Class A income building on Market Street well under way, with funds in hand and plans and specifications prepared for an attractive temporary museum building to be erected in Golden Gate Park, with substantial foundations laid for a large natural history library and great research collections, the prospects of the Academy seem brighter than at any time in its history.—*Edward Winslow Gifford.*

#### ANNUAL MEETING OF THE COLORADO BIOLOGICAL SOCIETY

The members and friends of the Colorado Biological Society listened to a very interesting program, at the Annual Meeting of the Society which was held Wednesday evening, January 8, 1907, in the rooms of the Colorado Scientific Society, Chamber of Commerce Building, Denver.

The first address of the evening was given by Mr. L. J. Hersey, the prominent naturalist and sportsman, his subject being "Birds". His talk which covered the structure, habits, classification and distribution of bird-life was illustrated by many stereopticon views of birds and their nests and eggs.

The second address of the evening was given by Prof. C. P. Gillette of the State Agricultural College of Fort Collins. Prof. Gillette who is the leading entomologist of the state chose for his subject "Plant Lice", and the narration of the life history, food habits, peculiarities and economic features of these tiny creatures proved intensely interesting.

At the conclusion of the program an hour was devoted to informal discussions after which the meeting adjourned.—R. B. R.

#### EDITORIAL NOTES

The "Report of the Chief of the Biological Survey for 1907", by Dr. C. Hart Merriam, deserves the careful attention of every American citizen. The practical work of the Bureau extends to matters intimately associated with the interests of the farmer, fruit grower, stock raiser, and sportsman, and thus merits unstinted support from the utilitarian standpoint alone. And when it comes to pure science we recognize in the Survey a contributor of the larger share of our knowledge of North American zoogeography. Let us help, thru our influence with National legislators, to not only continue but augment the work of the Bureau, along the lines outlined by its chief in his Recommendations for 1909.

The Cooper Club again participates in a distinction won by one of its active members. The only election to Fellowship in the American Ornithologists' Union during 1907 was that

of Richard C. McGregor, who has been pegging away steadily at Philippine ornithology for the past five years. The honor was merited, and in behalf of the Club we extend to him our congratulations.

Miss Bertha Chapman, who has been in charge of the nature study department in the Oakland city schools for the past seven years, has received an appointment as instructor in the University of Chicago.

The "First Annual Report" of the California Audubon Society, recently issued, shows that organization to have a decidedly thrifty start. It has already done considerable work along the lines of bird protection, and a campaign is being outlined by its energetic secretary, Mr. W. Scott Way, which is sure to accomplish much further good. The movement is of a nature to elicit a very large popular support, and, as far as direct human agencies are concerned, bird-life will thru it become more and more immune from destruction. The general annihilation of the domestic cat will be about the most important achievement to work for.

Mr. Chas. A. Vogelsang, Chief Deputy of the California Fish Commission, has just returned from an extended trip in the East where much valuable data was gathered in regard to game protection and fish culture.

The plans of Mr. R. H. Beck for a 1908 expedition to the Galapagos Islands did not materialize. Instead, Mr. Beck is collecting along the coast of Lower California for the California Academy of Sciences.

Mr. Edmund Heller, assisted by Chas. H. Richardson, Jr., is engaged in field work in the vicinity of Salton, in the interests of Miss Annie M. Alexander.

Every student of California birds should send for Prof. Beal's report on the "Birds of California in Relation to the Fruit Industry", which can be had by application to the Biological Survey, Washington, D. C. While we cannot agree exactly with the conclusions in regard to some of the species dealt with (for instance, the Linnet), the data presented is of indisputable value and interest. Much biographical data is also incorporated, of interest to the general bird student.

#### PUBLICATIONS REVIEWED

A | MONOGRAPH | of the | PETRELS | (Order  
Tubinares) | By | F. DUCANE GODMAN | D. C.  
L. F. R. S. President of the British | Ornithologists' Union etc. etc | With Hand-coloured Plates | by J. G. Keulemans | In Five Parts | Part I. | Witherby & Co. | 326 High Holborn London | December 1907. Large 4to (10x13 in.), pp. 1-68, pl. 1-19+5a (=20).

In excellence of typography and in careful execution of the plates, as shown by Part I,



the above-titled brochure bids fair to pass the standard set by the various other English Monographs of recent years. All the known species of Petrels, Shearwaters and Albatrosses will be dealt with in the completed work, so that for this Order of birds it becomes our standard text. The first part treats of 24 species of the Genera *Procellaria*, *Halocyptena*, *Oceanodroma*, *Oceanites*, *Garrodia*, *Pelagodroma*, *Pealea*, and *Cymodroma*. Of these the Genus *Oceanodroma* is the only one represented on the western coast of North America north of the Mexican boundary, and, moreover, it is the largest Genus, containing no less than thirteen recognized species.

*Leucorhoa, beali, beldingi, keadingi, macrodactyla, melania, homochroa, monorhis* (=the *socorroensis* of our lists), *hornbyi*, and *furcata* are the species of *Oceanodroma* accredited to the eastern north Pacific. *O. hornbyi* continues to be known only from the type specimen now in the British Museum, and "said to have been obtained in the seas off the north-western coast of America." Mr. Godman evidently resents the action of the A. O. U. Committee in placing the species on the Hypothetical List, "as if the correctness of the habitat were not credited." But he further says, "unfortunately, after the manner of the times, no original label was attached to the specimen." However, until the species is rediscovered, it seems to us the course of the A. O. U. Committee is best followed. The lately described *O. monorhis chapmani* as well as the older *O. socorroensis* are both considered by the author as identical with the *O. monorhis* of Swinhoe, described in 1867 from China, thus giving the species an extremely wide range. Mr. Godman seems to have taken great pains in working over the literature of the subject and presenting the reader with selected biographical and exact distributional data. The beautiful hand-colored plates are perhaps the most attractive feature of the work.—J. G.

GEOGRAPHIC VARIATION IN BIRDS, WITH ESPECIAL REFERENCE TO THE EFFECTS OF HUMIDITY by C. WILLIAM BEEBE, Curator of Birds, New York Zoological Park (*Zoologica*: N. Y. Zool. Soc., Vol. I, No. 1, September 25, 1907; 41 pages, 6 figures.)

Mr. Beebe first takes up the historical phase of the subject, giving quotations from many eminent biologists who have studied geographic variation. Several of these quoted statements are diametrically opposed to one another, and the reader is left with the impression that the subject is as yet largely theoretical. The consensus of opinion seems to be, however, that humidity does affect the color of animals, those in the more humid parts of the earth being as a rule darker than those in the arid regions. Many interesting examples of

the supposed effect of humidity on coloration are cited, and these bear out well the above statement.

Dichromatism is discussed in the second division of the paper. In several cases, for instance in *Gallinago gallinago* and *Chen hyperboreus*, the dark phase is shown to inhabit a restricted and humid locality, whereas the light phase is more migratory and is widely distributed. This is also the case with the Black Hawk, the dark phase of the Rough-legged Hawk; but when dichromatism in the Jaegers is taken into account, no geographical explanation is possible, since the "distinction depends neither on age, sex, or season," and light birds frequently mate with those in the dark phase. *Felis onca*, the South American jaguar, and *Felis pardus*, the leopard of Asia, present instances of dark individuals in the more humid portions of their respective countries; in the Mountain Sheep of the western United States black individuals are frequently seen, tho moisture in this case could have nothing to do with it. In conclusion the author says that these points will be cleared up only by the study of ecological conditions surrounding the species in question, and by experimentation on individuals "with climatal factors modified."

More problems are presented by Part III, which considers the subject of sporadic melanism. Several examples are given and discussed.

Part IV and V deal with experiments carried on by Mr. Beebe himself. Three young Wood Thrushes, *Hylocichla ustulata*, were taken from a nest and brought up by hand. Two of the birds lived long enough for the completion of a satisfactory experiment. One was kept in an outdoor aviary where conditions were as nearly normal as possible, while the other was confined in a superhumid atmosphere. This bird had not quite completed its second annual molt when it died. It showed a very marked darkening of the breast and side feathers, with a "tendency toward albinism" in the primaries and rectrices, whereas the outdoor bird was to all appearances in perfectly normal plumage.

Two White-throated Sparrows were treated in a like manner. At the end of three years the plumage of the indoor bird was "melanistic to an extreme degree," while that of the other was normal.

Similar experiments carried on with *Scardafella inca*, the Inca Dove, are considered in Part V. At the outset the geographical modifications of the wild genus *Scardafella* as it is traced from Arizona and Texas south thru Mexico to Brazil are considered. When a typical *Scardafella inca* is confined six months before the annual postnuptial molt, and exam-

ined after it has taken place, a slight darkening of the new feathers is noticeable. "A radical change in the pigmentation of the plumage takes place with each succeeding molt." The darkening seems to parallel the coloration of the wild species; that is, after the first molt the bird is similar to the wild *Scardafella inca di-leucos*, which inhabits Honduras and Nicaragua. Later molts bring the subject in line with *Scardafella ridgwayi* of Venezuela and Brazil. Finally it became so dark that there is no wild species with which it may be compared. In the birds experimented on a steady increase of melanin, both in the feathers and in the choroid coat of the eye, takes place until finally no white feather areas at all are left. Many wild genera of tropical doves are characterized by an iridescence of the wing coverts and inner secondaries. A remarkable feature of the color change of Mr. Beebe's subjects is the appearance of iridescence upon these feathers as a certain stage of melanin concentration is reached.

In discussing the results of his experiments, the author considers the following subjects, Significance in Respect to Direction of Evolution, Correlation with Natural Selection, Correlation with Taxonomy, and Correlation with Organic Selection.

The doves or *Columbiformes* are for the most part tropical in distribution, and it is probable that those which range farther to the north are tropical in origin. Since in these experiments the color characters assumed are progressively parallel to species farther toward the tropics, we apparently have an instance of "reversal of the direction of evolution." As the "recapitulation follows the same lines as in related genera of doves", and the details of change are identical in several individuals, Mr. Beebe decides that his work supports the orthogenetic hypothesis. He says that *acquired* and *inherited* characters should be clearly distinguished. The experiments here recorded show that the *Scardafella* specific differences are merely ontogenetic, or acquired characters.

"Mutation and natural selection have no place in these experiments." Still Mr. Beebe is led to the conclusion that natural selection is important in nature. For example, if the white color of Arctic animals is purely the result of environmental modification of pigment production "why does not the snowy owl change in summer like the ptarmigan", and why do some mammals remain dark thruout the year, while others are white at certain seasons? Natural selection probably comes continuously into play, modifying the direct climatal effect in accordance with the needs of each species. The rapid response to environment recorded in these experiments is likely to shake the ideas of "gradual evolution" and

"long-continued action of environing conditions upon the whole organism."

The writer thinks that it would be unreasonable to discard species whose distinctive characters are found to be merely acquired, for often there is a geographical hiatus between the species, and other differences, for instance in habits, would be swamped under one name.

"Any correlation of the results outlined in the present paper with the various theories of evolution must be tentative in the present state of our knowledge." This point we think should be emphasized, for when an individual of a wild species is experimented upon in confinement the fine adjustments of nature are broken down, and many subtle influences we do not now understand may be taken from it or brought to bear upon it, perhaps wholly obscuring the truly significant features. Mr. Beebe asserts that his experiments seemingly support the theory of organic selection; he gives as a possible adaptive character the presence of increased pigment in epidermal structures in a hot moist climate—adaptive in that this pigment absorbs the irritating ultra-violet rays of light. Compared with animals of the arid deserts, however, animals in the hot, moist, and therefore cloudy climates receive comparatively little light, and we should expect the former would exhibit the most abundant epidermal pigment supply! The following proposition seems justifiable, however, "if a new character, ontogenetically acquired, is in any way adaptive, it might easily be the means of preserving the species until phylogenetic variation had impressed it upon the race."

The paper constitutes one more step toward the placing of experimental biology upon a basis of importance in research work on the great problems of the science. The impression left on the reviewer, however, is that of the exploitation of the unknown rather than addition to the known.—*Walter P. Taylor.*

#### MINUTES OF COOPER CLUB MEETINGS

##### NORTHERN DIVISION

JANUARY.—The regular annual meeting for the election of officers of the Northern Division of the Cooper Club was held at the Chamber of Commerce, corner of Twelfth and Franklin Streets, Oakland, Saturday evening, January 11, 1908.

Preceding the business session Mr. Edw. W. Gifford, assistant Curator of Ornithology in the Academy of Sciences, San Francisco, spoke on "The Restoration of the Academy Collection." Mr. Gifford referred to the good fortune of the Academy in receiving the collections of the Beck Expedition after the fire, thus

forming a nucleus for the new collection. During the progress of the fire some of the skins had been removed to Mr. Loomis' residence, but unfortunately this dwelling, too, was included in the path of the flames on the following day. Only two skins of all the thousands were saved and these were two Guadalupe Petrels which Mr. Loomis thrust into his pocket as he emerged from his burning home with his household effects.

Mr. Wm. H. Hall, who had promised a talk on the birds of the Hawaiian Islands was too ill to be present so the discussion now became informal and turned on the subject of "Albinos." Some remarkable instances were elicited.

Mr. W. Otto Emerson reported an Anna Hummingbird with the plumage entirely of a dirty white color; also a Red-winged Blackbird entirely white except the tail which was of the usual glossy black, making a startling contrast. Another instance was that of an Oregon Towhee flecked with white suggesting to the observer an advanced stage of a progressive disease.

Dr. D'Evelyn cited an instance of a partial albino English Sparrow that came under his observation in Union Square, San Francisco. He also remarked that in practical aviculture albino parents never produce albino offspring.

Mr. J. S. Hunter spoke with admiration of a white crow and Mr. Emerson, not to be outdone, offered a record of a nest of five California Jays, all white, also two broods of English Sparrow of five and six respectively all albinos in the nest, refuting the theory suggesting an analogy between the albino and the human being with whitened hair attendant upon some nervous shock.

Dr. D'Evelyn called attention to a mounted specimen of the Kiwi in a store window on Fourteenth street, between Washington and Broadway, Oakland. This species is the *Apteryx owenii*, found on the South Island of New Zealand, but only in very remote districts.

The business session being opened, a roll-call showed the following members present: H. W. Carriger, D. A. Cohen, Dr. F. W. D'Evelyn, W. O. Emerson, Edw. W. Gifford, J. S. Hunter, Milton S. Ray and R. S. Wheeler.

The following elections by the Southern Division were confirmed: R. Magoon Barnes of Lacon, Ill., Dr. T. W. Richards, U. S. S. Kansas, care Postmaster, New York; N. Y., Robert B. Rockwell, Denver, Colorado, B. R. Bales, M. D., Circleville, Ohio, Jesse C. A. Meeker, Danbury, Conn.

Mr. Milton S. Ray proposed the name of Oluf J. Heinemann, 1532 Fulton Street, San Francisco, for membership. It was voted that an expression of the thanks of the Northern Division be tendered the former business manager,

Mr. Clifton, and the Chair appointed Messrs. Cohen, Emerson and Wheeler to draft the same.

After a vote of thanks to the retiring president and Secretary the club proceeded to the election of officers with the following results: President, Dr. Fred. W. D'Evelyn of Alameda; Senior Vice President, W. O. Emerson of Haywards; Junior Vice President, Edw. W. Gifford of Alameda; Secretary, J. S. Hunter of San Mateo.

In accordance with certain provisions of the constitution the President appointed as the editorial staff of THE CONDOR for the ensuing year the same gentlemen who served during the past year.

The Oakland Chamber of Commerce was selected as the official headquarters of the Northern Division. Adjourned.

ROSSELL S. WHEELER, *Secretary*.

#### SOUTHERN DIVISION

DECEMBER.—The December meeting was called to order by President Morcom in the Faculty room, Throop Polytechnic Institute, Pasadena, Cal., Friday evening, December 27, 1907, with members Geo. Willett, O. W. Howard, C. B. Linton, Chas. W. Metz, Howard Wright, Chas. Richardson, Jr., and J. Eugene Law present.

The minutes of the last meeting, November 27, 1907, were read and approved.

On motion by Mr. Howard, seconded by Mr. Wright and duly carried, the Secretary was instructed to cast the unanimous vote of those present electing to active membership Louis Agassiz Test, C. O. Esterly and Robert B. Rockwell, the latter subject to the approval of the Club-at-large owing to his non-residence in the state.

Applications for membership were presented as follows: W. M. Peterson, Neah Bay, Washington, by M. F. Gilman; Miss Myrtle E. Johnson, National City, Cal., by Prof. Wm. E. Ritter; Lester Black, Long Beach, Cal., by C. B. Linton; and Pingree I. Osburn, Pasadena, Cal., by Chas. H. Richardson, Jr.

On motion by Mr. Howard, seconded by Mr. Willett and duly carried, the resignation of M. L. Wicks, Jr., was accepted.

On motion by Mr. Willett, seconded by Mr. Howard and duly carried, the Secretary was instructed to cast, separately for each officer, the unanimous ballot of those present, electing as officers for 1908, those nominated at the december meeting, viz.: G. Frean Morcom, President; H. J. Lelande, Vice-President; W. Lee Chambers, Treasurer; and J. Eugene Law, Secretary.

This records the formal meeting and the business transacted, but it would be hard to record the hours of pleasurable and instructive orni-

thological chat that occupied the evening before and after business. Adjourned.

J. EUGENE LAW, *Secretary*.

**JANUARY.**—The January meeting of the Southern Division met with Dr. F. M. Palmer in his offices at 371 Huntington Building, Los Angeles, Cal., Thursday evening, January 30, 1908, with members L. A. Test, C. O. Esterly, Jos. Grinnell, O. W. Howard, H. T. Clifton, Willard Chamberlain, Howard Wright, Arthur Howard, Wilson C. Hanna, Chas. H. Richardson, Jr., C. E. Cosper, C. B. Linton, Lester Black, W. Lee Chambers, Virgil Owen and J. E. Law present. In the absence of the President and Vice-President, Mr. Clifton was made chairman for the evening.

On motion by Mr. Cosper, seconded by Mr. Owen and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing Miss Myrtle E. Johnson, National City, Cal., Mr. Lester Black, Long Beach, Cal., and Mr. Pingree I. Osburn, Pasadena, Cal., to active membership, and Mr. W. M. Peterson, Neah Bay, to active membership subject to the approval of the Club-at-large.

The following applications were presented for active membership: Arthur deC. Lowerly, Anglo-Chinese College, Tientsin, China, by Malcolm P. Anderson; Alfred Brazier Howell, Catonsville, Maryland, by H. W. Marsden; and J. M. Davis, 1438 Seventh Street, Eureka, Cal., by H. F. Duprey.

On motion duly carried, the resignations of Mr. W. Scott Way and Mr. E. Crawford May were accepted, their dues having been paid to date.

Two interesting letters from Malcolm P. Anderson, now collecting in China, were read, telling of his successes and hardships in that field.

Dr. F. M. Palmer in a short talk outlined the plans for a distinctly southwestern museum in southern California. This plan has progressed so far that a site comprising something over 35 acres has been purchased and largely paid for. The Archeological Society already has as a nucleus for this museum its very fine collection of archeological specimens, many of which are almost unique, and are of great scientific value. Dr. Palmer suggested the cooperation of the Cooper Ornithological Club in the directing and establishing of the ornithological branch of the museum, and hoped that in some way not yet figured out, this might be accomplished. On motion by Mr. Grinnell, seconded by Mr. Owen and duly carried, the chairman was instructed to appoint a committee of three, to consider these suggestions and report at a future meeting. Messrs. Grinnell, O. W. Howard and Law were appointed as this committee.

Mr. Grinnell then gave us a brief outline of

his recent trip of inspection thru the eastern museums. In a trip covering five weeks in December and January, he visited the Chicago, Washington, D. C., Philadelphia, New York and Boston Museums, and met a large number of the ornithologists of these centers. An hour went quickly in this rapid outline, and we were given "inside touches" on all these museums. Of special interest were the accounts of the Field Museum, The American Museum of Natural History, and the Thayer Museum. Adjourned.

J. EUGENE LAW, *Secretary*.

**FEBRUARY.**—The February meeting was called to order by President Morcom at Faculty Room, Throop Polytechnic Institute, Pasadena, Cal., Thursday evening, February 20, 1908, with members John Lewis Childs, O. W. Howard, Geo. Willett, Jos. Grinnell, Loye Holmes Miller, L. A. Test, C. O. Esterly, H. T. Clifton, C. B. Linton, C. E. Cosper, Walter Taylor, Chas. Richardson, Jr., Howard Wright, Pingree I. Osburn, Chas. W. Metz, Willard Chamberlain and J. E. Law present, and as visitor Mr. W. S. Wright of Pasadena.

The minutes of the December, 1907, and January, 1908, meetings were read and approved.

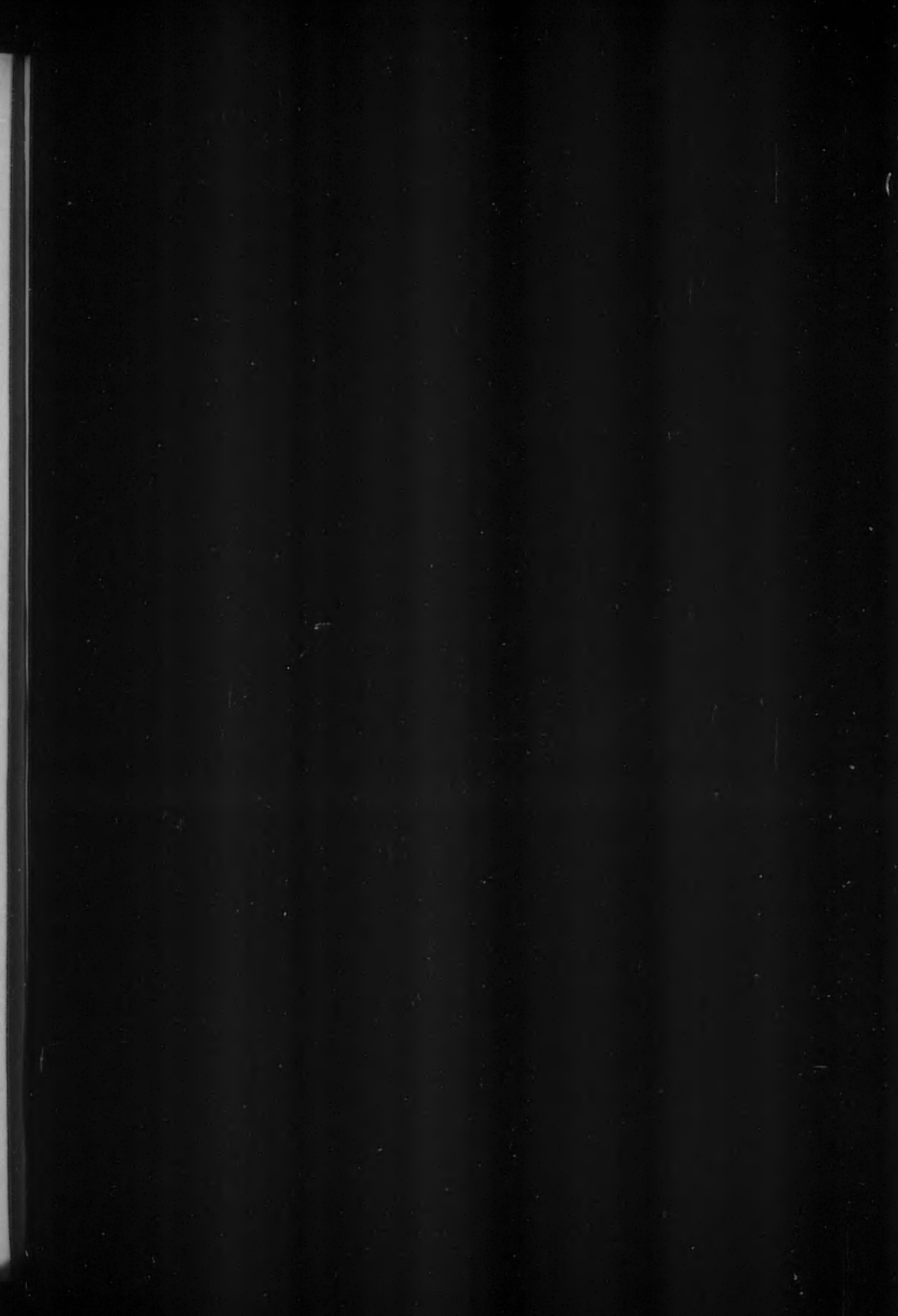
On motion by Mr. Willett, seconded by Mr. Cosper and duly carried, the Secretary was instructed to cast the unanimous ballot of those present, electing to active membership subject to the approval of the Club-at-large, Alfred Brazier Howell, Catonsville, Maryland, and J. M. Davis, Eureka, Cal.

Mr. Childs gave a short talk in which he expressed his interest in the activity of the Cooper Club and his pleasure at being able to meet with it from time to time.

Mr. Grinnell read a paper on certain problems of bird population, calling the Club's attention to the comparative stability in numbers, i. e., that apparently the death rate equaled the birth rate. This, he showed by illustrations and observations, was primarily due to food supply conditions, and that apparently any given species was limited in numbers to those that could find food supply in the season of least food production. In other words, any given locality held as many individuals as could exist in that region in the period of least abundance of the particular food the individuals lived on, and that in this season of least abundance, the bird population of any given species is reduced to the average number thru the death of those members not able to compete in the strife for existence.

Mr. Grinnell suggested that the Club acquaint itself meanwhile with, and at the next meeting discuss, Prof. F. E. L. Beal's recent paper on the "Birds of California in Relation to the Fruit Industry." Adjourned.

J. EUGENE LAW, *Secretary*.







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